

UTAH

AIR QUALITY BOARD

Meeting
January 5, 2005



Department of Environmental Quality
Division of Air Quality

Barbara Johnson



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprolt
Director

Air Quality Board
Jerry D. Grover
Scott Hirschi
James R. Horrocks
Dianne R. Nielson
Richard R. Olson
Wayne M. Samuelson
JoAnn B. Seghini
Marcelle Shoop
Jeffery K. Udey
John M. Veranth
Ernest E. Wessman
Richard W. Sprolt,
Executive Secretary

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

UTAH AIR QUALITY BOARD MEETING

FINAL AGENDA

Wednesday, January 5, 2005
1:30 p.m.

168 North 1950 West (Bldg #2) Room 101

- I. Call to Order
- II. Date of the Next Air Quality Board Meeting: February 2, 2005.
- III. Approval of the Minutes of November 3, 2004, Board Meeting.
- IV. Final Adoption: R307-110-11 and SIP Section IX.B, SO2 Maintenance Plan. (Bill Reiss)
- V. Proposal for Final Approval: Natural Events Action Plan. (Dave Strohm)
- VI. Propose for Public Comment R307-210-1. Incorporation by Reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). (Rusty Ruby)
- VII. Appeal Of Sevier Power Company Permit And Appeal Of IPP Unit 3 Permit. Notification Of Further Proceedings. (Fred Nelson)
- VIII. Information Items
 - A. PM10 Maintenance Plan Update (Bill Reiss and Colleen Delaney)
 - B. Compliance: (Jeff Dean)
 - C. HAPS Compliance: (Bob Ford)
 - D. Monitoring: (Bob Dalley)

MINUTES

MINUTES

KENNE GOTT
MODIFY

UTAH AIR QUALITY BOARD MEETING
November 3, 2004
MINUTES

October and November Work Sessions: The Board held a two part working lunch session series at 12 noon prior to the October and November board meetings to provide members with information on how to determine Best Available Control Technology (BACT). The October presentation was by Regg Olsen and Rusty Ruby, DAQ Permitting managers. The November briefing was from Jana Milford of the University of Colorado and Environmental Defense. The slides for both presentations are attached. Both meetings were open to the public and attended by several citizens. No business was conducted.

I. Call to Order

John Veranth called the meeting to order at 1:35 p.m.

Board members present:

Jerry Grover	Dianne Nielson	Marcelle Shoop
Scott Hirschi	Richard Olson	Jeff Utley
Jim Horrocks	Wayne Samuelson	John Veranth
	Joann Seghini	Ernest Wessman
Executive Secretary: Richard W. Sprott		

Mr. Veranth introduced the representative from the County Public Health Organization, Mr. Lloyd Berentzen. Mr. Sprott added that Mr. Berentzen comes from the Bear River Health Department, Cache Valley, and had been involved with air quality for the past few years.

II. Dates of upcoming Air Quality Board Meetings:

Wednesday, December 1, 2004 and Wednesday, January 5, 2005.

III. Approval of Minutes of October 3, 2004 Board Meeting.

Mr. Veranth spoke with Fred Nelson concerning informational meetings that were held previous to the Board meetings. It was noted that these meetings should be included for the record and that no business was conducted.

Mr. Veranth pointed out a correction on the minutes where Kathy Van Dame is quoted on page five, line seven, where it states, "...settlement agreement is that this finding of technically infeasible..." should be changed to: "...this conclusion in the engineering review of technically infeasible..."

JoAnn Seghini moved to approve the minutes and Jeff Utley seconded. The Board approved unanimously.

IV. Final Adoption: Amend R307-110-12 and State Implementation Plan Section IX.C.8, the Carbon Monoxide Maintenance Plan for Ogden; and Amend R307-110-35 and State Implementation Plan Section X.E, the Vehicle Emissions Inspection and Maintenance Plan for Weber County. Presented by Jan Miller.

Ms. Miller noted that staff had responded to comments that had been received.

Mr. Veranth received no response from the audience or Board when he asked if there were any questions.

Mr. Wessman moved to adopt R307-110-12 and State Implementation Plan Section IX.C.8, the Carbon Monoxide Maintenance Plan for Ogden; and Amend R307-110-35 and State Implementation Plan Section X.E, the Vehicle Emissions Inspection and Maintenance Plan for Weber County.

Mr. Olson seconded and the Board approved unanimously.

V. Final Adoption: Revise R307-202, Areas Outside Davis, Salt Lake, Utah and Weber Counties: Open Burning; and Revise R307-303, Davis Salt Lake, Utah and Weber Counties: Open Burning. Presented by Jan Miller, Cheryl Heying, and Regg Olsen.

Ms. Miller stated that during the public comment period, staff had received and responded to comments. The first was from the Mayor of Herriman, who didn't like the regulation about when the public could burn. Staff explained to the Mayor that Salt Lake County and not DAQ determined the open burn window. There was a brief comment from Wasatch County about the new provision that prohibited burning on land being converted from agriculture to other use. The comment said it would be expensive to haul all of the debris to the landfill. DAQ felt there were other options like chipping and selling for mulch. The Hurricane Mayor and city council had other concerns, which DAQ addressed.

Ms. Heying noted that staff's intention was only to clarify language under R307-202-1 and also under R307-303-1. There is nothing in R307-202 and/or R307-303 that exempt any source from meeting the requirement of R307-401, which is the approval order (AO) process. Mr. Hirschi asked if R307-401 was effective off the Wasatch Front to which staff stated that it was. The requirements under R307-401 have to do with permitting and approval orders and PSD, which line up under the R307-400 series of the existing rule.

Individuals/companies may also have a requirement under R307-202 or R307-303, but that would be with the local fire official. This rule has to do with open burning and only deals with the permits received from local fire officials. If the local fire department requires a permit, then under R307-202 or R307-303, DAQ "issues" an air quality permit by rule. If these requirements are met, then the fire marshal can also give a permit.

Ms. Miller noted that getting an open burning permit from the county notifies the fire department and they can address safety concerns.

Mr. Grover asked if there were conflicts and facilities couldn't get a burn window because of the timing. Also, were there some approval orders that talk about opening burning?

Ms. Heying said that DAQ wants to clarify this rule to show that there are separate requirements. From the questions that ATK Thiokol had asked, ATK would be subject to the approval order conditions. Some of the confusion lies at what point does R307-401 come into R307-202 or R307-303 as they exist now. Companies get an approval order that deals with air quality. If an opening-burning permit is required, DAQ lines out the criteria for the state fire marshal or the local official. For example, a facility such as Hill Air Force Base has an

approval order. If Hill wants to open burn, then that would be covered under the criteria listed under R307-202 or R307-303, provision six, permissible burning with an opening burning permit from the local government. Under the open burning permit rules, DAQ basically specifies under which conditions the local fire department or authority can issue a permit. Those should not conflict with provisions under any approval order.

Mr. Sprott noted that staff had reviewed a good number of approval orders during the clarification of this rule making, and ascertained that there was no conflict. In reference to Mr. Grover's question, there were no permit conditions that conflicted with the new rules and they are intended to work side by side and compliment each other. As for Ms. Heying's example, Hill Air Force Base may have nothing that addresses open burning in their AO because they don't do it on a routine basis. What they would do is go to the new R307-303 which applies to the nonattainment area and they can use the permit by rule portion without having to come in and do the AO process. Some enterprises, such as ATK, have a couple of different situations where they are currently operating under the open burning provision only. In other cases, they are operating under their AO. The concept is to keep the permits separate, do what's in the AO and that may add some additional requirements and conditions that will be applicable in the open burning R307-202 or R307-303. That is how it is supposed to operate.

Mr. Hirschi asked about the 30-day open burning period where it talks about the dates that could be established by the local government. If understood correctly, it did not change the present regulation.

Ms. Miller replied that it did change. Washington County and St. George wanted the spring period extended earlier because the season started earlier in southern Utah. The burn period used to be March 1 to May 30, now it is February 1 to May 30.

Mr. Hirschi said he called St. George out of curiosity and asked what their 30-day burn date was. They claimed that it expired on October 15, so how could a 30-day period expire on October 15?

Ms. Miller replied that the current rule says September 15 through October 30. Complaints came from the state fire marshal because the closed fire season runs from June 1 – October 31. The statute is also clear that the fire marshal has the option to change the closed fire season at different times and places. So that is why it says an individual could burn between October 1 and November 30, if the state fire marshal allows it. So we shortened it on the fall and lengthened it on the spring.

In answer to Mr. Grover's question about controlled burns, Ms. Miller said that controlled burns fell under R307-204, Smoke Management Rule. Land managers, whether federal, state or private, submit plans in advance and then get prior approval.

Ms. Miller explained that the open burning rule covers both the individual homeowner who wants to burn their leaves in the fall and industrial enterprises. Staff put the sentence in the very first paragraph so the average reader could figure out where they should be looking for the rule. What's in the exclusions language is almost straight out of the statute. Normally statutory language is not put in the rule.

Ms. Heying said that to go through and list all of the exclusions, and if it is not worded correctly, may lead people to believe that although they have a permit, they are entirely excluded from the conditions under the rule. Certain kinds of activities may require both.

Mr. Grover stated that from a practical application, he wanted to make sure that the public understands clearly what applies and what doesn't. Do individuals go to the fire marshal or DAQ, and who enforces the rule?

Ms. Miller explained that DAQ gives a presentation on open burning rules to the local fire chief association that meet once or twice a year.

Ms. Heying noted that staff had been in this process for six months trying to find the best-crafted language. This was the most straight-forward way to accomplish the goal of meeting the requirements. It's the ATK's that are doing open detonation of hazardous waste and falling within these certain requirements.

Susan Jew, Director of Environmental Services, ATK Thiokol, addressed the Board and expressed concerns how the change would affect the company. She then reviewed the procedures under which both locations functioned. The company owns the rocket motor manufacturing facilities at Baucus, formerly known as Hercules and also the Thiokol facility at Promontory in Box Elder County. Both facilities open burn waste explosives for disposal in association with the manufacturing process. The handling of the materials is of concern because some of the materials are more stable than others. Both facilities agreed either the clearing index system in the opening burning rule or the approval order system would be the right way to be regulated.

Baucus, in the Salt Lake valley, has an approval order. The AO contains detailed restrictions about what kinds of waste and quantities of materials can be burned under the red/green burn system, it doesn't address the clearing index. It was assumed that the clearing index in the open burn rule was pre-empted by the approval order. At Baucus, the change would put the facility under the clearing index system, which is more restrictive than the red/green burn system. This would then involve the West Valley Fire Department. The company didn't feel that the fire department was the right group to intercede between air quality concerns and explosive safety.

Mr. Utley asked how the rule change would affect Baucus. Ms. Jew replied that it would depend on what the company could work out with the West Valley Fire Department.

Mr. Utley commented that the company's concern then was the instability of the explosives and the need for disposal, and not waiting for the clearing index.

Ms. Jew responded that wastes have an unusual and highly variable mix of ingredients. What is put into a rocket motor is well defined and nothing unexpected. Waste materials have extraneous materials added and that composition can affect the sensitivity. There is a history at Baucus of having materials in storage for extended periods of time. The sensitivity characteristics have changed and when the facility intended to burn them, they detonated.

Ms. Jew went on to explain that Promontory was located in a remote part of northern Utah. The facility burns under the permit provisions in the open burning rule and has not had an approval order for that operation.

Mr. Hirschi commented that the facility was burning year round, yet operated under the open burning provision, which had certain windows for burning.

Ms. Jew replied that the Air Quality Board allowed the facility to get a variance because of the sensitivity of the material.

Mr. Rod Smith, ATK Thiokol, said the variance did not apply to the window. Promontory was allowed to conduct open burning under the open burn provision. The facility was disposing of highly explosive and hazardous materials in a remote location under the clearing index with the proper authorization from the local fire marshal.

Mr. Grover asked if ATK had a RCRA (Resource Conservation and Recovery Act) permit as well.

Ms. Jew answered yes. Both facilities are in the process of obtaining a RCRA permit but had not yet completed the permit process. The RCRA permit will provide very detailed restrictions on the quantities, the operations, and types of wastes that are burned. It doesn't necessarily address the clearing index or PM10 concerns.

Ms. Heying said that the RCRA permit would be very specific for air contaminants based on risk based analysis. It wouldn't address any standards under PM10, PM2.5 or any of the clearing indices or the SIP requirements

Mr. Veranth commented that there is a mixing of apples and oranges into one rule. In the context of Baucus, we simply exclude burning of energetic material with an approval order where you have detailed engineering review of the process and can put in the appropriate stipulations of about amounts and times and rates and all that. It seems that this could be accommodated if we take the energetic materials out of burning weeds and put it where it belongs in terms of an engineered industrial process. He asked Mr. Fred Nelson, Attorney General's office, if it could be considered excluding energetic materials if that was added to the permissible exclusions? Would that be a substantive change and would that require new public comment?

Ms. Miler responded that if the Board did not want to adopt it today, then this filing would expire by the end of the month. Staff would then start over and go through the public comment process again.

Mr. Nelson replied that he thought that it would be a change. There is confusion on what exclusions are. The way the rule is set up is based on statute. The statute specially says the Air Quality Board has no authority to regulate those exclusions under R307-202-2. Those exclusions are there because the statute specifically prohibits the Board from regulating them. The next section talks about general prohibitions, you are prohibiting generally those kinds of activities. The next section is on permissible burning without a permit. With the exclusions already gone, it states which activities the Board can regulate, like permissible burning without a permit. It may be better to put that kind of a provision in there. The Board can say it's permissible to burn, without an open burning permit, if you are covered by an approval order. The next section requires a permit. The Board says you can open burn in these circumstances if you get a permit from the local health department or from the Board. Wherever you want to put it, it does constitute a substantive change. I don't know whether that would solve this problem. The staff will have to take a look at it.

Mr. Veranth suggested that the staff and the key stakeholders, like the West Valley Fire Department, and ATK meet and see if there are any reasons why the existing approval order isn't adequate. ATK could put that in as an R307-303-4, saying that if there is an approval

order, they could burn without a specific permit. Are there others that have opening burning approval orders?

Ms. Heying said that there are approval orders that allow facilities to burn hazardous waste materials and explosive materials, but it still may require an open burning permit under R307-202 or R307-303.

Mr. Veranth noted that there was a big issue of open burning and open detonation where facilities were doing the demilitarization of missiles. The Board needs a clear definition of what an energetic material is as distinguished from biomass.

Ms. Nielson also asked that the staff take a look at the approval orders. Maybe there ought to be some language within the approval order that specifically says there are times and constraints under which you can manage these materials.

Mr. Hirschi emphasized that any modifications should reinforce the fact that they still need to deal with the local authority as far as burn authority.

Ms. Jew said that had been the practice at Baucus, ATK had always notified the fire department immediately prior to a burn, but had not sought a permit or approval. Also the Promontory facility in Box Elder County had the situation where the county had its own opening burning regulations and the facility was restricted from burning on Sundays, Mondays and certain times of day.

Mr. Hirschi added one last point. It seems there is no way the Board should or could exclude the local fire authorities from this process. There has been some suggestion that perhaps they would be excluded.

Mr. Wessman motioned to refer back to staff for further work. Staff needs to discuss with stakeholders to resolve the issue, particularly the burning of energetic materials and other issues that have come up today.

Mr. Samuelson seconded the motion and the Board approved unanimously.

V. Informational Items

A. Remote Sensing Van: Presented by Joe Thomas and Cheryl Heying.

Mr. Thomas explained that the remote sensing device measures and records exhaust emissions from vehicles as they drive by. In May 2004, Utah County Health Department loaned the unit to Division of Air Quality (DAQ) to evaluate the potential contribution of light duty vehicle emissions in Cache County. With the help of Bear River Health Department and Utah State University, DAQ was able to analyze roughly 20,000 vehicles. Earlier this year, Utah County terminated its remote sensing program and disclosed to DAQ their intentions to sell the unit and asked if DAQ was interested in purchasing it. Acquiring this unit would give DAQ the ability to help assist communities in evaluating vehicle emissions and to better understand the potential contribution of vehicles to regional pollution levels. In order for DAQ to ensure the purchase of this unit is consistent with state policy, prior consultation was needed from the Utah Legislature. With approval, DAQ made a purchase offer to Utah County Health Department and is awaiting their response. Upon acquisition, a second remote

sensing study will be conducted this winter in Cache valley to determine the seasonal difference in emissions.

- B. **Compliance.** No questions.
- C. **HAPS Compliance.** No Questions.
- D. **Monitoring:** Presented by Bob Dalley

Mr. Dalley reported that the Wood Burn Control/Chose Clean Air had begun for the winter season, November 1 to March 1.

The graphs for September and October were reviewed. On the graphs, particulate matter monitoring results were shown in red for September and blue for October. The high wind event in October also affected PM10. He then reviewed the three-year ozone summary, which showed a decrease.

Ms. Nielson asked if there was data that had been flagged and what was the status in terms of EPA consideration.

Mr. Dalley explained that there was flagged data, which showed higher ozone and PM10. Documentation had been provided as part of the flagging process. EPA had concurred with some of the flagged data, and not with others. There is PM10 data that EPA has not concurred with yet.

Mr. Veranth asked about the high ozone days that were associated with forest fire and smoke incursions that happened two summers ago and if that was included in the list.

Mr. Dalley responded that there was flagged data within the 3-year average that EPA had not yet concurred with. As it was flagged, it was not included in the average.

Ms. Nielson noted that right now the data was not impacting the determination of attainment. But if EPA comes back and makes a different determination, then DAQ may have to go back and do more evaluation.

Mr. Dalley further noted that the flagged numbers did not change the fourth highest value. Looking over the total impact, it would not put Utah into a nonattainment situation. EPA has a certain time period to concur or not concur.

Meeting adjourned: 2:50 pm



Utah Air Quality Board Work Session

October 6, 2004

Best Available Control Technology

Presented by:

Regg Olsen and Rusty Ruby



BACT Presentation

- **Brief History of BACT**
- **BACT Process**
- **Summary**

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BACT History

- **1972 - Court case spawned PSD and BACT**
- **1974 - First regulations containing BACT**
- **1977 - Congress defines BACT in the Clean Air Act (legislative history insightful)**
- **1978 - regulation defining BACT**
- **Today - Statute and regulations remain largely unchanged**

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BACT Definition History

- **Clean Air Act Amendments of 1977**
 - **BACT statutorily defined**
 - Site specific
 - Case-by-case
 - Multi-factor
 - NSPS as floor
- **1978 PSD regulations adopted the definition but did not provide additional guidance on how the determination was to be made**

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Top-Down BACT History

- **EPA 6/25/1990 letter:**
 - **"The top-down approach is an analytical procedure (not a rule) for States and sources to use to ensure that the statutory requirements of BACT are met."**

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BACT – Identify Control Options

- **Includes:**

- **Technology transfer**
- **Foreign technologies**
- **Innovative technologies**
- **Inherently lower-polluting processes**
- **Control strategies that are combinations of listed control options**

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BACT "Top-Down" Step #2:

Technical Feasibility

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BACT – Step 2A "Availability"

- **Technology is available if it can be obtained by the applicant through commercial channels or is otherwise available within the commonsense meaning of the term.**
- **Technology is not available if it's in development:**
 - **Conceptual, research and patenting, bench-scale testing, pilot-scale testing**

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BACT – Step 2B "Applicability"

- **Availability by itself is not sufficient to conclude a technology is technically feasible. (1990 NSR Manual, p. B.18)**
- **TEST:**
 - **Can control option be reasonably deployed or "applicable" to the source type under consideration?**

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BACT "Top-Down" Step #3

**Rank Technically Feasible
Control Options**

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BACT – Ranking of Options

- **Ranking is based solely on achievable emission reduction for the pollutant in question**
 - **Other considerations arise elsewhere**
- **Relatively non-controversial step**
- **But, heavily dependent upon results of the controversial Step 2 Technical Feasibility Determination**

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BACT - Control Costs

- One of several factors to be considered when making a BACT ... however ...
 - Typically this factor is weighted very heavily by many agencies
 - Top-down approach results in cost being the primary consideration while energy, environmental, and "other" factors are not emphasized

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BACT - Control Costs

- Concept – the most stringent control option is selected unless the use of that option results in an "adverse economic impact." (1990 NSR Manual, pp. B.31 to B.46)
 - Need to understand two concepts
 - How to calculate costs
 - What is an adverse economic impact

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Incremental Cost Effectiveness

Total Costs Option 1 - Total Costs Option 2

Tons Removed Option 1 - Tons Removed Option 2

To [REDACTED] ts

BACT Environmental Impacts

BACT – Energy Impacts

- Statute, Regulation, Guidance all require consideration of energy impacts associated with controls
- This area has the least guidance
- Energy considerations typically overlap with economic and environmental impacts.

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Establishing the BACT Emission Limit

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Statutory/Regulatory BACT

Summary

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Top-Down Myths

- States are not required to use top-down
- The framework of the top-down process has no regulatory basis
- However, the process used must be documented and cannot be arbitrary or capricious

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BACT: Case-by-Case

- **"Level Playing Field"**

- This is a myth occasionally cited by those who disagree with rejection of a particular control technology, especially on the basis of unreasonable costs
- BACT determinations are not required to be as stringent as prior BACT determinations for similar facilities

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BACT: Case-by-Case

- **"Level Playing Field" (cont'd.)**

- PSD does include two elements that have the effect of "leveling the playing field":
 - PSD increment
 - BACT not less stringent than NSPS/NESHAP
- Congress understood how to write a requirement for a "level playing field" in terms of minimum stringency of air pollution control technology requirements
 - LAER, unlike BACT, does require that each determination be at least as stringent as all prior determinations

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Utah Air Quality Board Work Session

November 3, 2004

Best Available Control Technology

Presented by:

Jana Milford
University of Colorado and
Environmental Defense





Best Available Control Technology

A Technology Forcing Requirement to Limit New Growth in Air Pollution

Prepared by Vicki Stamper*

and Jana Milford

Rocky Mountain Office of Environmental Defense

*Consultant for Environmental Defense

Utah's New Source Permitting Process

- Utah DAQ has an expansive NSR program, including minor source BACT
- Utah DAQ provides documentation on its website regarding NOIs and proposed AOs

Utah's New Source Permitting Process

- Utah does not always use its full authority to require thorough review of technologies and to ensure top level of control is required as BACT.
- Utah should document compliance history and background of existing emission limits during review of NOI.
- Modeling analysis should be conservative to ensure public health/environmental protection.

BACT is Essential to the Purposes of the PSD Program

PSD program enacted to

- "insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources" and
- to "preserve, protect and enhance" air quality in national parks and other areas of special value. 42 U.S.C. § 7470.

BACT is Required to Be Technology-Forcing

- BACT is intended to ensure new source growth in air emissions is *minimized* as much as possible. S. Rep. No. 95-127 at 29.
- BACT is meant to spur "improvements in the technology of pollution control" and to compel the "rapid adoption of improvements in technology" as new sources are built. S. Rep. No. 95-127 at 17-18.

BACT is Required to Be Technology-Forcing

While BACT is to be determined on a case-by-case basis, *see* 42 U.S.C. § 169(3), the permitting authority's analysis must in all circumstances give effect to the purpose of BACT, which is to promote the use of the best technologies as widely as possible. *In re Knauf Fiber Glass, GMBH*, 8 E.A.D. at 140.

It makes sense for BACT to Be Technology-Forcing

- It is most cost-effective to install/upgrade pollution controls prior to new construction or significant modification.
- A case-by-case review of the top controls should force improvements in air pollution control technology.

BACT Requirements

- Based on the maximum reduction of air pollutants which can be achieved considering energy, economic, and environmental impacts
- Determined on a case-by-case basis
- Includes application of production processes, available methods, fuel cleaning or treatment, and innovative fuel combustion techniques
- No less stringent than NSPS
- BACT required for all new and significantly modified sources of air pollution, for all pollutants to be emitted in significant amounts

EPA's Oversight Role in State BACT Determinations

As the permitting authority, Utah makes BACT determinations.

EPA retains oversight role "to ensure that State's BACT determination is reasonably moored to the Act's provisions." Alaska Dept. of Environ. Conservation v. EPA (U.S. 2004).

State must provide a reasoned justification for its decisions and determinations must be faithful to the statutory definition of BACT. Alaska Dept. of Environ. Conservation v. EPA (U.S. 2004).

Top-Down Approach

- Recommended by EPA to improve the effectiveness of NSR program
- Under top-down BACT, the most stringent level of control is required unless the applicant can adequately justify a lower level of control.
- The EAB has continually looked to the top-down process in "evaluating the rationality and defensibility of BACT determinations."

Top-Down Approach

"The Draft NSR Manual is not accorded the same weight as a binding Agency regulation and, as such, a strict application of the methodology described in the NSR manual is not mandatory. Nevertheless, in evaluating the rationality and defensibility of BACT determinations by permitting authorities, the Board has required an analysis that reflects a level of detail in the BACT analysis comparable to the methodology in the NSR Manual. *In re Three Mountain Power*, 10 E.A.D. at 42; see also *In re Steel Dynamics*, 9 E.A.D. 165, 183 (EAB 2000)."

Step 1: Review of All Available Technologies

- Pollution technologies with a practical potential for application to the source, including technology transfer
- Pollution prevention (e.g., fuel cleaning) or end-of-pipe (e.g., scrubber) techniques

Step 1: Review of All Available Technologies (cont'd)

- Inherently lower polluting processes such as innovative fuel combustion techniques
- Combination of lower emitting processes and add-on controls
- Should review technologies applied outside U.S.

Review Must Go Beyond EPA's RACT/BACT/LAER Clearinghouse

- RBLC is not always up to date or may not reflect current advancements in technology

Example: Selective Catalytic Reduction (SCR) at Coal-Fired Boilers

- o Was Applied Widely in Japan and Germany before U.S. utilities began using in early 1990's
- o Yet, RBLC contains only one example of SCR being required through 1999 (in 1995).
- o Further, current entries in RBLC show NOx emissions rates half as much as the plant permitted in 1995.

Other Sources of Information on Technologies

- Controls required or installed due to SIP requirements (e.g., NOx SIP call) or other CAA requirements including LAER
- Controls proposed in recent permit applications
- Technical journals, vendor research
- Environmental consultants
- Proprietary databases

Technology Transfer

“Technology transfer must be considered in identifying control options. The fact that a control option has never been applied to process emission units similar to or identical to that proposed does not mean it can be ignored in the BACT analysis if the potential for its application exists.”

NSR Workshop Manual p. B16.

Inherently Lower Emitting Processes

Consideration of inherently lower emitting processes is required in the BACT process and should not be considered as redefining the source if the technology is available and feasible.

Example: Integrated Gasification Combine Cycle (IGCC) for Power Production from Coal.

Recently, the states of New Mexico, Illinois, Georgia, and Montana have found that IGCC should be reviewed as an available technology in the BACT process for coal-fired power plants.

Eliminate Technically Infeasible Controls

- Demonstration of technical infeasibility should be thoroughly documented
- Should show that technical difficulties would preclude the successful use of the control option
- Cost is not a reason for determining a control is technically infeasible.

Technical Feasibility Concepts: Availability and Applicability

Availability means that the technology can be obtained through commercial channels.

Applicability means either the technology

- o Has been applied (or will be) to a similar source OR
- o Could be applied to the source based on a comparison of the physical and chemical characteristics of the gas stream to that of the sources that have applied the technology.

Burden is on Applicant to Show a Technology is Not Applicable

- Control options should be assumed to be applicable unless the applicant can present adequate information to the contrary.
- Physical modifications to make a technology work do not, by themselves, mean a technology is not applicable.
- Lack of a vendor guarantee does not necessarily mean technology is infeasible.
- Economic issues must be reviewed later, not to eliminate a technology as infeasible.

Rank Remaining Controls by Effectiveness

- Ranking should include
 - expected emission rate (units should be same for all control options ranked)
 - efficiency of control
 - expected emission reduction in tpy

Range of Performance Levels for a Particular Control Technology

- Applicant should use most recent regulatory decisions and performance data to identify the highest level of performance to be evaluated.
- Assumption is that a source can achieve same performance levels unless applicant demonstrates source-specific factors would not allow
- A control technology eliminated as too costly at its highest level of performance may be acceptable at a lower removal rate.

BACT Selection Process

- Either the applicant proposes the top control, or the applicant eliminates based on energy, environmental or economic costs.
- Technologies are reviewed top-down until the alternative cannot be eliminated based on energy, environmental or economic impacts.

Economic Analysis

- Economic impacts must be considered in conjunction with energy and environmental impacts. NSR Workshop Manual p. B.32.
- Cost of technology is determined based on average cost effectiveness and, in some cases, incremental cost effectiveness.
- If the costs are similar to what other sources of the same type have borne, then the cost must be considered reasonable.

Average and Incremental Cost Effectiveness

- Average cost effectiveness, in dollars per ton pollutant removed, is based on the annualized cost of a control option divided by the reduction in emissions that would occur from uncontrolled emissions.
- Incremental cost effectiveness is used to compare costs and emission reductions of two control options.
- Incremental cost should not be evaluated by itself. See NSR Workshop Manual p. B41, *In re General Motors, Inc.*

Energy Impacts

- Control technologies should be evaluated to determine if they provide any significant energy penalties or benefits.
- Should focus only on direct energy consumption.
- Can often be folded into economic analysis.

Environmental Impacts

- Considers impacts other than to NAAQS or PSD increments, including
 - solid or hazardous waste generation
 - discharges of polluted water
 - visibility impacts, nitrogen and/or acid deposition
 - emissions of unregulated and toxic pollutants including CO₂ and other greenhouse gases
 - co-benefits for other pollutants (or detrimental effects on other pollutant emissions)

Select BACT

- Regardless of the control proposed by the applicant, UDAQ must make the final BACT decision after public review.
- UDAQ must have a reasoned justification based on the administrative record for the technology and emission limits required as BACT, as well as for any technologies eliminated in the BACT review.

Setting BACT Emission Limit

- Averaging time should be no less stringent than averaging time of emission rate determined to be BACT.
- BACT should be met on a continuous basis.
- Any “reasonable safety factor” used in setting a BACT limit must be adequately documented and supported.

Summary

- BACT is a technology-forcing requirement
- UDAQ needs to identify alternatives that maximize reductions
- Broad and proactive review of all available technologies
- Burden on the applicant to show infeasibility
- Reasoned justification for requirements and for eliminating better-performing alternatives

Conclusions

UDAQ has the authority and mandate to require the top level of pollution control for new and modified industrial sources.

Ultimately, the public is the customer
UDAQ should be serving by ensuring new sources meet what is truly the best available control technology.

R 307-210-1

INFORMATION

ITEMS



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

OLENE S. WALKER
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Lieutenant Governor

DAQ-061-2004

MEMORANDUM

TO: Air Quality Board

THROUGH: Rick Sprott, Executive Secretary

THROUGH: Regg Olsen, Manager, Permitting Branch

FROM: Rusty Ruby, Manager, New Source Review Section

DATE: November 22, 2004

SUBJECT: Propose for Public Comment: R307-210-1. Incorporation by Reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS).

The Standards of Performance for New Stationary Sources (NSPS) are federal rules that regulate the owner or operator of any stationary source that contains an affected facility that has commenced construction or modification after the date of publication of that standard. The Standards of Performance for New Stationary Sources implement Section 111 of the Clean Air Act (CAA). These standards are commonly referred to as NSPS standards, and are located in 40 CFR Part 60.

The Division of Air Quality has previously incorporated NSPS standards by reference into the Utah Administrative Code. Recently, existing NSPS standards have been modified and new standards have been promulgated. As these standards are modified and promulgated by EPA, the Division proposes the incorporation of these standards into the Utah Administrative Code.

Recommendation: The staff recommends that the new and modified standards be proposed for incorporation by reference into R307-210. The text of each individual NSPS standard is voluminous and is not included in the Board packet; instead, a summary is attached. The proposed text for the modification to R307-210-1 is attached for your review.

R307. Environmental Quality, Air Quality
R307-210 Stationary Sources
R307-210-1 Standards of Performance for New Stationary Sources (NSPS).

~~[The standards of performance for new stationary sources in 40 CFR 60 (1998), as amended by 63 FR 49442, 64 FR 7457, 64 FR 9257, and 64 10105]~~ The provisions of 40 Code of Federal Regulations (CFR) Part 60 effective on July 1, 2004, and amended by 64 FR 41346 (July 8, 2004), are incorporated by reference into these rules with the exception that references in 40 CFR to "Administrator" shall mean "executive secretary" unless by federal law the authority referenced is specific to the Administrator and cannot be delegated.

KEY: air pollution, stationary sources [*], new source review [*]

[1999] 2005

19-2-104

19-2-108

69 FR 41346, 07/08/2004 Standards of Performance for Stationary Gas Turbines

SUMMARY: This action promulgates amendments to several sections of the standards of performance for stationary gas turbines in 40 CFR part 60, subpart GG. The amendments will codify several alternative testing and monitoring procedures that have routinely been approved by EPA. The amendments will also reflect changes in nitrogen oxides (NOX) emission control technologies and turbine design since the standards were promulgated.

68 FR 70960, 12/19/2003 Standards of Performance for Bulk Gasoline Terminals and National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)

SUMMARY: On August 18, 1983, EPA promulgated Standards of Performance for Bulk Gasoline Terminals (48 FR 37590). The 1983 standards of performance limit and control emissions of volatile organic compounds (VOC) that react with other pollutants to form ozone (or smog) which has been linked to respiratory impairment and eye irritation, and negatively affects vegetation and ecosystems. On December 14, 1994, EPA promulgated National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations) (59 FR 64318). The 1994 national emission standards limit and control hazardous air pollutants (HAP) that are known or suspected to cause cancer or have other serious health or environmental effects.

On September 20, 2002, EPA proposed amendments to the 1983 standards of performance and 1994 national emission standards to provide for the use of alternative leak test procedures for railcars under the 1994 national emission standards, a clarification on monitoring flares and thermal oxidation systems used to comply with the 1994 national emission standards, alternative recordkeeping requirements for tank trucks and railcars under the 1983 standards of performance and 1994 national emission standards, and the use of flare design specifications under the 1983 standards of performance by incorporating the allowance in the text of that final rule. This document takes final action on those proposed amendments. The amendments do not change the level of control or compromise the environmental protection achieved by the 1983 standards of performance and 1994 national emission standards, but provide clarification and alternatives that enhance the flexibility of the recordkeeping and testing requirements of the two final rules.

68 FR 59328, 10/15/2003 Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984

SUMMARY: On April 8, 1987, the EPA promulgated the Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984. On March 27, 2000, the EPA issued a memorandum which stated that process tanks are "storage vessels" under the definition in the Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or

Modification Commenced After July 23, 1984. On May 26, 2000, the American Forest and Paper Association (AF&PA) filed a petition for judicial review of the March 27, 2000 memorandum. In this action, EPA promulgated final rule amendments that were proposed pursuant to a settlement agreement with the American Forest and Paper Association (AF&PA) regarding their petition for judicial review of the March 27, 2000 memorandum. The final rule amendments will exempt certain storage vessels by capacity and vapor pressure, exempt process tanks, and add the process tank definition. The EPA is also amending the performance standards to exempt storage vessels that are subject to the National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production.

66 FR 57824, 11/16/2001 Standards of Performance for Large Municipal Waste Combustors for which Construction is Commenced after September 20, 1994 or for which Modification or Reconstruction is Commenced after June 19, 1996, and Emission Guidelines and Compliance Times for Large Municipal Waste Combustors that are Constructed on or before September 20, 1994

SUMMARY: EPA amended the standards of performance for large municipal waste combustors (MWC) by extending the time during which such units will be excused from compliance with the emission limits for carbon monoxide due to certain types of malfunctions. Since the compliance and performance testing provisions in the emissions guidelines for large MWC reference the compliance and performance testing provisions in the standards of performance, this amendment to the standards has the effect of amending both the standards and the guidelines.

66 FR 36473, 07/12/2001 Standards of Performance for Large Municipal Waste Combustors for which Construction is Commenced after September 20, 1994 or for which Modification or Reconstruction is Commenced after June 19, 1996, and Emission Guidelines and Compliance Times for Large Municipal Waste Combustors that are Constructed on or Before September 20, 1994

SUMMARY: EPA amended the standards of performance for large municipal waste combustors by expanding the definition of mass burn rotary waterwall municipal waste combustors (MWC) to include mass burn tumbling-tile grate waterwall municipal waste combustors. This change ensures that the same emission limit is established for both types of MWC designs since they exhibit similar combustion characteristics. Since the emissions guidelines for large municipal waste combustors reference the definitions included in the standards of performance, this amendment to the standards has the effect of amending both the standards and the guidelines.

66 FR 9034, 02/06/2001 Amendments to Standards of Performance for New Stationary Sources; Monitoring Requirements: Delay of Effective Date

SUMMARY: In accordance with the memorandum of January 20, 2001, from the Assistant to the President and Chief of Staff, entitled "Regulatory Review Plan," published in the Federal Register on January 24, 2001, this action temporarily delays for 60 days the effective date of the rule entitled Amendments to Standards of Performance for New Stationary Sources; Monitoring Requirements, published in the Federal Register on August 10, 2000, 65 FR 48914. That rule concerns revising monitoring requirements to Performance Specification 1 (PS-1) of appendix B

to part 60. The revisions clarify and update requirements for source owners and operators who must install and use continuous stack or duct opacity monitoring equipment. The revisions also update design and performance validation requirements for continuous opacity monitoring system (COMS) equipment in appendix B, PS-1.

65 FR 78268, 12/14/2000 Consolidated Federal Air Rule (CAR): Synthetic Organic Chemical Manufacturing Industry

SUMMARY: This action promulgates a consolidated Federal air rule for the Synthetic Organic Chemical Manufacturing Industry (SOCMI). In this final rule, EPA consolidate major portions of several new source performance standards (NSPS) and national emission standards for hazardous air pollutants (NESHAP) applicable to storage vessels, process vents, transfer operations, and equipment leaks within the SOCMI. The final rule pulls together applicable Federal SOCMI rules into one integrated set of rules in order to simplify, clarify, and improve implementation of the existing rules with which source owners or operators must comply. The consolidated rule is an optional compliance alternative for SOCMI sources; sources may simply continue to comply with existing applicable rules or choose to comply with the final consolidated rule. The effects of this consolidation are to improve understandability, reduce burden, clarify requirements, and improve implementation and compliance. This document also announces the effective date of information collection requirements in a subpart in the Code of Federal Regulations relating to standards of performance for volatile organic compound emissions from the synthetic organic chemical manufacturing industry reactor processes which was originally published in the Federal Register on August 31, 1993.

65 FR 18906, 04/10/2000 Standards of Performance for New Stationary Sources, and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills

SUMMARY: Under the Clean Air Act (CAA), the EPA issued a final rule entitled "Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills," published in the Federal Register on March 12, 1996 (61 FR 9905). A subsequent direct final rule, published on June 16, 1998 (63 FR 32743) corrected errors and clarified regulatory text of the final rule. These technical corrections will correct an error in the amendatory instructions and an inconsistency between the reportable exceedances and reporting of monitoring data. Section 553 of the Administrative Procedure Act, 5 U.S.C. 553(b)(B), provides that, when an agency for good cause finds that notice and public procedure are impracticable, unnecessary or contrary to the public interest, the agency may issue a rule without providing notice and an opportunity for public comment. The EPA has determined that there is good cause for making today's rule final without prior proposal and opportunity for comment because the changes to the rule are minor technical corrections, are noncontroversial in nature, and do not substantively change the requirements of the NSPS/EG rule. Thus, notice and public procedure are unnecessary. The EPA finds that this constitutes good cause under 5 U.S.C. 553(b)(B).

65 FR 13242, 03/13/2000 Standards of Performance for New Stationary Sources: Industrial-Commercial-Institutional Steam Generating Units

SUMMARY: On February 12, 1999 (64 FR 7458), EPA promulgated final rule amendments to reduce unnecessary reporting and recordkeeping burdens due to regulations implementing the Clean Air Act (CAA). These final rule corrections relating to standards of performance for industrial-commercial-institutional steam generating units serve to correct an error in the final rule amendments as promulgated on February 12, 1999.

64 FR 9258, 02/24/1999 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES AND GUIDELINES FOR CONTROL OF EXISTING SOURCES: MUNICIPAL SOLID WASTE LANDFILLS

SUMMARY: The EPA is amending the CFR to correct errors made in the direct final rule, "Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills," published in the Federal Register on June 16, 1998. The direct final rule amended, corrected errors, and clarified regulatory text of the final rule, which was published on March 12, 1996 (63 FR 32743). Today's action further clarifies the regulatory text and corrects errors. Industry sectors likely to be affected include Air and Water Resource and Solid Waste Management, and Refuse Systems—Solid Waste Landfills (North American Industrial Classification System codes 92411 and 562212).

63 FR 32743, 06/16/1998 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES AND GUIDELINES FOR CONTROL OF EXISTING SOURCES: MUNICIPAL SOLID WASTE LANDFILLS

SUMMARY: This action amends, corrects errors, and clarifies regulatory text of the "Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills," which was issued as a final rule and guideline on March 12, 1996.

COMPLIANCE

KENNECOTT

MODIFY



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

DAQC-1679-2004

MEMORANDUM

TO: Air Quality Board
FROM: Richard W. Sprott, Executive Secretary
DATE: December 14, 2004
SUBJECT: Compliance Activities – November 2004

Annual Inspections Conducted:

A.....2
SM.....7
B.....32

Initial Compliance Inspections Conducted:

A.....0
SM.....2
B.....1

On-Site stack test audits conducted:.....6
Stack test report reviews:.....28

On-site CEM audits conducted:.....3
Emission reports reviewed:.....0

Oxy fuels inspections conducted:.....0

¹Miscellaneous inspections conducted.....14

Complaints received:.....26

VOC inspections:

Tankers	1
Degreasers	20
Paint Booths	56
Source Compliance Action Notice issued	4
Notices of Violation issued	0
Compliance Advisories issued	4
Settlement Agreements resolved	7
Penalties Collected	\$74,637.60

Notices of Violations issued: None

Compliance Advisories issued:

Tom Brown, Inc.
Westbrook Construction, Inc.
Chevron Products Co.
H.E. Davis Construction, Inc.

Settlement Agreements Reached:

Ponderosa Properties, Inc.	\$3,093.60
Richmond Homes of Utah, Inc.	\$1,031.20
Christensen Ready Mix, Inc.	\$2,919.20
U.S. Forest Service	\$25,000.00
Geneva Rock Products	\$7,561.60
Le Grand Johnson	\$6,320.00
Inermountain Power Service Corp.	\$28,712.00

¹Miscellaneous inspections include, e.g., surveillance, level I inspections, complaints, on-site training, tanker vapor certifications, dust patrol, smoke patrol, open burning, etc.



State of Utah

Department of
Environmental Quality

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DIVISION OF AIR QUALITY
Richard W. Sprott
Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

DAQC-1529-2004

MEMORANDUM

TO: Air Quality Board
FROM: Richard W. Sprott, Executive Secretary
DATE: November 10, 2004
SUBJECT: Compliance Activities – October 2004

Annual Inspections Conducted:

A2
SM2
B5

Initial Compliance Inspections Conducted:

A0
SM0
B0

On-Site stack test audits conducted:21
Stack test report reviews:6

On-site CEM audits conducted:12
Emission reports reviewed:15

Oxy fuels inspections conducted:0

¹Miscellaneous inspections conducted:12

Complaints received:23

VOC inspections:

Tankers	0
Degreasers	13
Paint Booths	3

Source Compliance Action Notice issued3

Notices of Violation issued0

Compliance Advisories issued4

Settlement Agreements resolved1

Penalties Collected.....\$8,320.00

Notices of Violations issued: None

Compliance Advisories issued:

Harpers Contracting, Inc.
Pacific West LLC
Newman Construction, Inc.
West Valley Sand & Gravel

Settlement Agreements Reached:

Progressive Contracting, Inc.\$8,320.00

¹Miscellaneous inspections include, e.g., surveillance, level I inspections, complaints, on-site training, tanker vapor certifications, dust patrol, smoke patrol, open burning, etc.

HAPS



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

OLENE S. WALKER
Governor

GAYLE F. McKEACHNIE
Lieutenant Governor

MEMORANDUM

TO: Utah Air Quality Board DAQH-0850-04

FROM: Richard W. Sprott, Executive Secretary

DATE: December 9, 2004

SUBJECT: Hazardous Air Pollutant Section Compliance Activities – November 2004

11/04

Asbestos Demolition/Renovation Inspections	11
Asbestos in School Inspections	0
MACT Compliance Inspections	7
Other NESHAP Inspections	0
State Rules (Only) Inspections	0
Asbestos Notifications Accepted	58
Asbestos Phone Calls Answered	312
Asbestos Individuals Certifications: Approved/Disapproved	30/0
Company Certifications/Re-certifications	0/2
Alternate Asbestos Work Practices: Approved/Disapproved	1/0
Lead Based Paint (LBP) Inspections	2
LBP Notifications Approved	3

LBP Phone Calls Answered	84
LBP Letters prepared and mailed	56
LBP Courses Reviewed/Approved	0
LBP Course Audits	4
LBP Certifications Approved/Disapproved	1/0
LBP Company Certifications	2
Notice of Violation Issued	0
Notices of Noncompliance (NON)	0
Compliance Advisories Issued:	12
American Asbestos (3)	
College of Eastern Utah	
L & M Interiors	
EAI	
Keith Barton	
Rocmont	
Eagle Environmental	
Environmental Abatement Inc.	
Mackay Kim, Inc.	
Ron Merkley	
C. Kent Chamberlain	
SCANS (warning letters) Issued	5
Settlement Agreements Finalized	1
Penalties Agree to	\$2,962.50

Settlement Agreement:	DCH Holdings	\$2,962.50
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State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

OLENE S. WALKER
Governor
GAYLE F. McKEACHNIE
Lieutenant Governor

MEMORANDUM

TO: Utah Air Quality Board DAQH-0788-04
FROM: Richard W. Sprott, Executive Secretary
DATE: November 18, 2004
SUBJECT: Hazardous Air Pollutant Section Compliance Activities – October 2004

10/04

Asbestos Demolition/Renovation Inspections	14
Asbestos in School Inspections	0
MACT Compliance Inspections	1
Other NESHAP Inspections	0
State Rules (Only) Inspections	0
Asbestos Notifications Accepted	106
Asbestos Phone Calls Answered	447
Asbestos Individuals Certifications: Approved/Disapproved	23/0
Company Certifications/Re-certifications	2/0
Alternate Asbestos Work Practices: Approved/Disapproved	3/0
Lead Based Paint (LBP) Inspections	3
LBP Notifications Approved	3

LBP Phone Calls Answered	102
LBP Letters prepared and mailed	83
LBP Courses Reviewed/Approved	0
LBP Course Audits	1
LBP Certifications Approved/Disapproved	3/0
LBP Company Certifications	2
Notice of Violation Issued	0
Notices of Noncompliance (NON)	0
Compliance Advisories Issued:	9
Dan Phellps	
Grant Mackay	
Keith Barton	
Milford City	
MKP Enterprises	
Roger Knight Construction	
Sahara Construction	
The Home Group	
Tim Wattoke	
SCANS (warning letters) Issued	4
Settlement Agreements Finalized	1
Penalties Agree to	\$8,250

Settlement Agreement:	Business Depot Ogden	\	
	Questar Energy Services	\	\$8,250
	City Creek Construction	/	
	Greene Concrete Cutting	/	

R 307-110-11

**Item IV. Final Adoption:
R307-110-11 and SIP Section IX.B, SO2
Maintenance Plan**



State of Utah

Department of
Environmental Quality

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DAQ-002-05

MEMORANDUM

TO: Air Quality Board

THROUGH: Rick Sprott, Executive Secretary

FROM: Dave McNeill, SIP Branch Manager

DATE: December 27, 2004

SUBJECT: Subject: Final Adoption: R307-110-11 and SIP Section IX.B - SO2 Maintenance Plan

At your September board meeting, you proposed for comment a revision to Section IX.B, SO2 of the State Implementation Plan (SIP), and to R307-110-11 that incorporates that section of the SIP into the rules. A comment period began on October 1, and a hearing was held on October 20. The most significant comments we received were from EPA Region VIII. We prepared a summary of their comments, and proposed responses to those comments, including proposed changes to the SIP that we felt would address their concerns. We delivered those proposed changes to EPA, asking if their concerns were met.

On Monday, December 13, we met with EPA in Denver to discuss their concerns and our responses. As a result of that meeting, on December 15th, EPA provided their final list of concerns regarding our proposed responses to their comments. Attached, you will find a summary of the comments received on this package, proposed responses to those comments, and revisions to the SIP that incorporate those responses.

We recommend that the Board adopt the attached revisions to R307-110-11 (*Section IX, Control Measures for Area and Point Sources, Part B, Sulfur Dioxide*) and SIP Section Section IX Part B, *Sulfur Dioxide*.

If you have any questions about this package, please call Bill Reiss @ (801) 536-4077 or me @ (801) 536-4037.

R307. Environmental Quality, Air Quality.

R307-110. General Requirements: State Implementation Plan.

R307-110-11. Section IX, Control Measures for Area and Point Sources, Part B, Sulfur Dioxide.

The Utah State Implementation Plan, Section IX, Control Measures for Area and Point Sources, Part B, Sulfur Dioxide, as most recently amended by the Utah Air Quality Board on ~~December 1, 2004~~ January 5, 2005, pursuant to Section 19-2-104, is hereby incorporated by reference and made a part of these rules.

KEY: air pollution, small business assistance program,
particulate matter, ozone

~~[2004]~~ 2005

19-2-104(3)(e)

Notice of Continuation March 27, 2002

Proposed SO₂ Maintenance Plan

Summary of Comments and Responses

The following is a summary of EPA's comments on our proposed SO₂ maintenance plan (Nov. 4, 2004) as well as a recommended response to each. Comments are loosely grouped by topic.

1. *There are no monitors located in the Tooele County portion of the nonattainment area. Therefore, the State cannot claim that the entire nonattainment area is in fact attaining the standards.*

The Tooele County portion of the nonattainment area is also the area referred to as the elevated terrain. Attainment in the high terrain was addressed in the modeling analysis relied upon in the approved attainment SIP. The maintenance plan continues to rely upon that same modeling analysis, and therefore continues to demonstrate attainment in the elevated terrain and by definition in Tooele County. In the SIP, this analysis is presented in Section IX.B.3.d. Our intention is to present the maintenance portion of the SO₂ story at Section IX.B.6, as an extension of what already appears in the SIP, but it should perhaps be made more clear therein that the modeling analysis from the approved attainment SIP will continue to function as the demonstration showing that ambient concentrations of SO₂ will remain within the levels prescribed by the National Ambient Air Quality Standards (NAAQS) in the elevated terrain so long as the emission limits at the smelter remain at or below those used in the analysis. To that end, we are proposing to insert new language within Section IX.B.6.c.(1) of the proposed Maintenance Plan to clarify this. We have also added language in Section IX.B.6.b.(1) to describe how attainment of the standard in the elevated terrain is determined in the absence of monitored data.

2. *One of the monitors that had recorded violations in 1981 (Airs No. 49-035-2002) is no longer in service. The State would need to show that one of the current monitors is still representative of that location.*

The map labeled Figure 1 in the proposed maintenance plan shows the locations of all SO₂ monitors, both current and historical. The monitor in question (Airs No. 49-035-2002) is labeled number 5 on the map. One can see that it is very

close to the monitor labeled number 6. Number 5 was taken out of service after 1983 because the lake rose and flooded the site. The Division of Air Quality (DAQ) operated the monitor at site number 6, essentially the same location as site number 5, from 1986 – 1991. At some time in 1991, the monitor was moved from location number 6 to location number 7; the marina at Great Salt Lake State Park. In 1992 the monitor was repositioned within the marina to accommodate some remodeling, but essentially locations 7 and 8 are the same. The monitor continues to operate at site number 8. All four of these site locations are collectively referred to as the “Beach” site(s), and language has been added in Section IX.B.6.b.(1) to make this clear.

The (1993) Annual Network Review, used to evaluate the adequacy of the monitoring network for all criteria pollutants, says that “The background for SO₂ is assumed to be zero, therefore monitoring is necessary only in areas where there are sources of SO₂.” Hence, each of the “Beach” monitors was situated so as to measure “impact from a significant source, a copper smelter.”

When the monitor was moved to the marina, DAQ submitted to EPA Region VIII an Ambient Air Monitoring Network Modification Request Form. Therein, the modification was described as “relocation of Beach site to a location of potentially higher point source impact as determined by visual observation and citizen complaints.” As discussed in the 1994 Annual Network Review, “The site routinely measures short timed SO₂ spikes above 0.8 ppm that last 3 to 10 minutes. This site is properly located to meet our present data needs.” Further evidence of the new Beach location(s)’ representativeness of the impact from the copper smelter may be seen in Figure 3 of the proposed maintenance plan. This histogram charts the history of the 2nd highest 24-hr values measured there, and one can see that it captures the trend of declining concentrations coinciding with the smelter modifications that took place from 1992 through 1995. This trend is also depicted in Figure 4 of the proposed maintenance plan, which illustrates the history of Kennecott’s SO₂ emissions.

3. *Section IX.B.6.b(3) is confusing, and should clearly indicate what are the current enforceable requirements for Kennecott.*

- a) *The 4th paragraph of this section indicates that control of low-level emissions at KUC has resulted in lower concentrations recorded at the Beach site(s). EPA would like to know if these controls have been reflected in SIP limits and/or operating practices and been approved by EPA.*

Section IX.B.6.b.(3) has been re-worked to more clearly describe the sequence of events at the smelter as it applied to both air quality emission limits and SO₂ concentrations at various locations. In a word, the low-level emissions were controlled once in the late 1970s and early 1980s. These controls were reflected in the Utah administrative rules for air quality (R307,) and effectively lead to the end of SO₂ exceedances at the Beach site(s). Low-level emissions

1 were controlled again during a period of smelter modernization in the early
2 1990s. These controls were also incorporated into the Utah SIP, and remain
3 federally enforceable.
4

- 5 *b) The 2nd paragraph indicates that, at one time, R307 was revised to include*
6 *emission limits and control requirements for the KUC smelter main stack and*
7 *smelter fugitive emissions. EPA wants to know if these requirements are still*
8 *enforceable or whether they have been superseded by the PM₁₀ SIP. They*
9 *would like clarification as to the current status of such in the maintenance*
10 *plan, and they would like to know where these limits actually appear.*
11

12 As discussed above, this has been addressed in a re-worked Section
13 IX.B.6.b.(3). Section IX.B.6.c.(1) has also been re-worked to clarify what is
14 being relied upon in this maintenance plan to demonstrate continued
15 compliance with the SO₂ NAAQS. The present status of emission limits is
16 discussed therein, and a table has been added to illustrate the succession of
17 emission limits as they pertained to the different stages of smelter
18 modification.
19

- 20 *c) The 3rd paragraph references Part H of the SIP. EPA still refers to this as*
21 *Appendix A to the PM₁₀ SIP, and ask that we provide a parenthetical*
22 *reference.*
23

24 DAQ will add a parenthetical reference to Appendix A wherever appropriate.
25

- 26 4. *The 2nd paragraph of Section IX.B.6.c.(1) indicates that the modeling and monitoring*
27 *relationships outlined in Section IX.B.3.d. (of the SO₂ attainment SIP) suggest a*
28 *safety factor of roughly 100%. EPA does not understand this statement, and asks for*
29 *further clarification. The last sentence of this section also indicates that "those*
30 *emission limits remain federally enforceable, and are not expected to increase over*
31 *the next ten years." The State must commit to continued implementation of these*
32 *limits.*
33

34 The modeling / monitoring relationship outlined in Section IX.B.3.d. is able to
35 predict a concentration by evaluating a given emission rate. The emission rates so
36 evaluated are the federally approved emission limits for the smelter, and the
37 predicted concentrations are then compared with the SO₂ NAAQS. This
38 information has been tabulated in Section IX.B.3.d.(4), and the results show that
39 the predicted concentrations are roughly one half of the respective NAAQS. This
40 means that we could double KUC's emission limits and still attain the SO₂
41 standards. In other words, the emission limits could be 100% larger and we
42 would still attain the standards. Another way to express this is to say that there is
43 a "safety factor of roughly 100%."
44

45 The second part of this comment concerns a commitment to continue
46 implementation of these limits. The limits are in fact already a federally

1 enforceable part of the Utah SIP. However, to make this entirely clear, we have
2 added language on page 13 to specify that "These conditions demonstrate
3 maintenance through the year 2016."
4

5 5. *The maintenance plan does not contain an emissions inventory and needs to do so.*
6

7 While DAQ recognizes that EPA's comment may be attributed to the Calcagni
8 Memorandum (Sept. 4, 1992), wherein guidance is presented for processing
9 requests to redesignate areas to attainment, we are not necessarily convinced that
10 the inclusion of this element is vital to the approvability of the plan. The
11 "attainment inventory" is discussed by Calcagni as one of the core provisions that
12 should be considered by states for inclusion in a maintenance plan. The guidance
13 anticipates that the (listed) provisions will be necessary to a generic maintenance
14 plan, but also notes that the adequacy of any maintenance plan will be made "in
15 light of the particular circumstances facing the area proposed for redesignation."
16

17 The circumstances in this case surround an area that was designated
18 nonattainment based on the SO₂ emissions from a single source; the copper
19 smelter at Kennecott.
20

21 According to Calcagni, the stated purpose of the attainment inventory is to
22 establish the level of emissions during the time periods associated with
23 monitoring data showing attainment. This is particularly important in those
24 instances where a maintenance demonstration for the area is based on the notion
25 that the future emissions in that area would remain within the levels established
26 by just such an inventory.
27

28 In such an instance, the attainment inventory would be compared with projection
29 inventories compiled for the 10-year duration of the maintenance plan. So long as
30 the projected inventory was less than the attainment inventory, one could continue
31 to assume attainment of the NAAQS.
32

33 By contrast, a maintenance demonstration could instead be founded on a
34 modeling analysis.
35

36 In that case, continued attainment would be demonstrated by running an air
37 quality model which considers factors related to meteorology, topography, and
38 certain stack characteristics as well as the emissions of an air contaminant. After
39 evaluating all of these factors, the model would then predict concentrations of the
40 air contaminant that could be compared to the relevant health standard.
41 Depending on the mix of sources to be evaluated by such a model, it may be
42 necessary to compile an inventory that would be used by the model.
43

44 As discussed above, Utah is still relying on the modeling analysis described in
45 Section IX.B.3.d of the approved attainment SIP to demonstrate compliance with
46 the SO₂ NAAQS in the elevated terrain. In this analysis, a suite of emission limits

1 representing each different averaging period was plugged into the modeled
2 relationship.

3
4 These are the same emission rates that would be used to generate an emissions
5 inventory for this source. As such, this suite of emission limits constitutes a
6 surrogate emissions inventory for the sole source of SO₂ affecting the area.

7
8 Hence, this surrogate inventory assumes the role for which the actual attainment
9 inventory was intended; that is, it represents a period in time during which the
10 standards for SO₂ were being attained, and thereby identifies a level of emissions
11 below which attainment of the NAAQS may be presumed.

12
13 The same approach for demonstrating continued attainment in the low terrain has
14 been outlined in the re-worked Section IX.B.6.c.(1). In this case, the emission
15 limits for the sources affecting the low terrain were modeled as part of the 1981
16 SO₂ SIP, and a relationship was established to ensure attainment of the standards
17 so long as those emission limits were retained. When the smelter was modernized
18 in the early 1990s, these emission limits were largely superseded by limits that
19 were more stringent. These new limits were incorporated into the Utah SIP, and
20 the federal enforceability of these limits is enough to ensure continued
21 maintenance of the SO₂ NAAQS.

22
23 Nevertheless, a Table 4 has been added to Section IX.B.6.c.(1) in order to provide
24 the reader with a representative emission inventory for all of the significant
25 sources of SO₂ at Kennecott affecting both low and high terrain. These
26 inventories of actual emissions reflect the succession of smelter modifications and
27 the associated emission limitations relied upon by the SO₂ attainment SIPs of both
28 1981 and 1992.

- 29
30 6. *A maintenance plan may generally demonstrate continued compliance with the*
31 *NAAQS by either a modeling analysis or by comparison with an attainment inventory.*
32 *Utah's proposed plan does neither. At a minimum there should be a maintenance*
33 *inventory for the portion of Tooele County above 5,600 feet and the area around the*
34 *KUC smelter (below which there would be no violation of the NAAQS.) For the*
35 *remainder of Salt Lake County, there should be a modeled demonstration of*
36 *continued compliance. In both cases, emission estimates should reflect permanent*
37 *enforceable measures and should be consistent with the various averaging periods of*
38 *the respective NAAQS. Any such limits must be practically enforceable, and the State*
39 *must commit to continued implementation of such.*

40
41 See previous discussion for the basis of an attainment/maintenance demonstration.
42 As noted before, DAQ will clarify in the maintenance plan that it is continuing to
43 rely upon the modeling analyses that served as the basis for the federally
44 approved attainment SIP. The emission limits used therein do in fact represent
45 permanent enforceable measures, and are consistent with all three averaging
46 periods for the SO₂ NAAQS. These limits appear in the SIP at Section IX.H. and

1 thereby establish the basis for a commitment to the continued implementation of
2 the control measures they represent.

3
4 See the discussion at item no. 14 concerning the remainder of Salt Lake County.

- 5
6 7. *The draft maintenance plan does not contain a projected maintenance year. Any such*
7 *plan must demonstrate continued compliance for 10 years. Adding two years for EPA*
8 *review, the maintenance year should be 12 years from the date of submittal.*
9

10 DAQ understands that a maintenance plan must demonstrate continued
11 compliance with the respective NAAQS for at least 10 years from the date of
12 approval. Practically speaking, this requirement is protective of the emissions
13 creep that is generally associated with an urban area. When there are many
14 different sources that contribute to a situation of nonattainment, to which trends of
15 projected growth or decline may be ascribed, it is necessary to evaluate the sum of
16 their emissions (ten years) into the future in order to determine, by modeling or by
17 inventory, whether compliance with the NAAQS is still presumed after ten or
18 twelve years. In this case, the only SO₂ emissions that are significant to the
19 modeled demonstration of continued attainment are constrained by emission
20 limits that are contained in a federally approved SIP. This means that there is no
21 projected trend of growth or decline, and that therefore the presumption of
22 continued attainment extends indefinitely into the future.

23
24 Nevertheless, we have added language in Section IX.B.6.c.(1) to reaffirm that
25 "These conditions demonstrate maintenance through 2016." (see also response to
26 comment no.4)
27

- 28 8. *Section IX.B.6.c.(3) and Table 3 within do not accurately reflect the stated*
29 *requirement of CAA Section 175A(c), which states that part D of the Act continues to*
30 *apply until the area is redesignated. Evidently what we have said, that the part D*
31 *provisions will remain in effect until the area is redesignated, implies that the SIP*
32 *elements would no longer apply after redesignation. This would be backsliding.*
33

34 It is certainly not the intention of DAQ to abandon the elements of the SO₂ SIP
35 should the area be redesignated to attainment. Both Table 3 and Section
36 IX.B.6.c.(3) will be revised to more accurately reiterate the language contained in
37 CAA Section 175 A.(c). (see also response to comment no.XX)
38

- 39 9. *EPA is uncomfortable with the notion of pre-implemented contingency measures for a*
40 *couple of reasons. First, Section IX.B.6.c.(1) implies earlier that credit for these*
41 *"other" sources in the PM₁₀ SIP is being taken as part of the maintenance plan.*
42 *Second, if there was a violation of the NAAQS the State would not be able to rely on*
43 *these pre-implemented measures to address the violation.*
44

45 Although pre-implemented contingency measures are not unprecedented, DAQ
46 understands EPA's concerns surrounding the contingency measure element of the

1 proposed maintenance plan. Due in large part to the confidence we have that
2 these measures will not be needed, we can agree to re-structure
3 Section IX.B.6.c.(4) such that pre-implementation will no longer be an issue. See
4 discussion below.
5

- 6 *10. The plan must identify a list of potential contingency measures which includes, at a*
7 *minimum, further controls on stationary sources. They provide some language from*
8 *another maintenance plan that we could use. Also, the schedule for corrective action*
9 *is too short. They suggest an implementation deadline of one year from the date of*
10 *violation.*
11

12 Given the flexibility exhibited in the language suggested by EPA, DAQ can agree
13 to re-structure the contingency provisions to include some potential measures as
14 well as a more definite schedule for ultimate implementation. See Section
15 IX.B.6.c.(4) for proposed language.
16

- 17 *11. The State must assure that it is ready to implement PSD in the area once it is*
18 *redesignated.*
19

20 DAQ is well aware of the changes that will result to the permitting program
21 should the area be redesignated to attainment. Utah is a "SIP approved" state
22 with respect to the PSD program, meaning that our rules reflect, to a large degree,
23 the construct of the federal PSD rules (at CFR 51.166.) The way in which Utah's
24 rules are structured will allow for immediate implementation of the PSD program
25 in any nonattainment area once it becomes redesignated to attainment. As a
26 separate project, DAQ is planning to amend the state PSD permitting rules to
27 adopt the NSR reform provisions, as required by the federal rule, by the beginning
28 of 2006.
29

- 30 *12. To the extent that control measures must remain in effect and federally enforceable,*
31 *the SIP still contains variance provisions and certain Director's Discretion that serve*
32 *to undermine this requirement.*
33

34 As EPA is well aware, these issues are presently being addressed within the
35 context of the forthcoming PM₁₀ maintenance plan. Nevertheless, we do wish to
36 point out that these same provisions existed within the state air program at the
37 time that EPA approved the SO₂ attainment SIP. Despite the discomfort EPA has
38 with these provisions, Utah has continued to attain and maintain the federal health
39 standards for SO₂.
40

- 41 *13. The State has modeled the emissions from the refineries, and thereby predicted*
42 *violations of the NAAQS.*
43

44 This statement is not correct. DAQ has conducted a refined modeling analysis
45 that shows compliance with the SO₂ NAAQS. Nevertheless, we understand
46 EPA's concerns, and look forward to sharing this information with the Region.

1
2 14. *EPA was under the impression that the maintenance plan would include a modeling*
3 *demonstration for the five refineries and would include emission limits for such. Such*
4 *an analysis needs to be included in the plan before EPA can re-designate the area to*
5 *attainment. Additionally, any modeling assumptions would need to be periodically*
6 *reevaluated, along with the rest of the plan, as per the requirement for verification of*
7 *continued attainment.*
8

9 As we have said all along, the nonattainment situation within Salt Lake County
10 and the eastern portion of Tooele County above 5,600 feet was due to entirely to
11 the emissions from the copper smelter at Kennecott. The federally approved
12 attainment SIP addresses only the Kennecott smelter, and so too should the
13 maintenance plan. The refineries are located sufficiently far away from
14 Kennecott, such that the emissions from these sources are distinct and do not act
15 in an additive way. The refineries have been addressed in a supplemental analysis
16 to see if they could create a separate incidence of SO₂ nonattainment, and the
17 result of the analysis is that they do not cause a violation of any SO₂ standard in
18 Salt Lake County or Davis County; either as separate facilities or as a group.
19

20 DAQ continues to believe that this information is more appropriately structured as
21 supplemental to a separate maintenance plan, as it does not demonstrate a
22 potential violation of the SO₂ standards.
23

24 Furthermore, each of the refineries is presently required to comply with federally
25 enforceable SO₂ limits in the Utah SIP, and based on these limits we have one
26 modeling analysis that shows compliance with the PM₁₀ NAAQS and another
27 analysis that shows compliance with the SO₂ NAAQS. DAQ does not see the
28 value in replicating these emission limits in another portion of the Utah SIP when
29 it is not necessary to ensure the continued protection of the public with respect to
30 either of these health standards.
31

32 As indicated before, DAQ looks forward to making this analysis available to EPA
33 with the understanding that it is not intended to become part of the SO₂ SIP.
34

35 15. *In one additional comment from EPA, based on discussions that occurred after the*
36 *close of the comment period, it was suggested that the maintenance plan would need*
37 *to address banked emissions.*
38

39 While recognizing that the issue of emissions banking is a point of ongoing
40 debate between the DAQ and the EPA, we have inserted some language into
41 Section IX.B.6.c.(1) which essentially states that the emission levels identified
42 therein, which are incorporated into the Utah SIP at Section IX. Part H (formerly
43 Appendix A to Section IX. Part A) should serve as a baseline for emission rates
44 relied upon by the 1992 SO₂ attainment SIP as well as this maintenance plan.
45 Thus, emission reduction credits would be allowed to the extent that they are

1
2

established by actual, verifiable, and enforceable reductions in SO₂ emissions below these levels.

Sulfur Dioxide Maintenance Provisions for the Salt Lake-Tooele Sulfur Dioxide Nonattainment Area

Section IX.B.6

Adopted by the Air Quality Board
December 1, 2004

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IX.B.6 Maintenance Plan

a. Introduction and Background

In 1978 EPA designated two areas within the State of Utah as nonattainment for the National Ambient Air Quality Standards (NAAQS) for sulfur dioxide: Cedar City and an area encompassing Salt Lake and Tooele Counties. Effective February 19, 1980, EPA approved the State's control strategy for SO₂ in Cedar City, but disapproved the strategy for the Salt Lake County-Tooele County nonattainment area. In 1981, the State submitted a SIP revision for the control of SO₂ in the Salt Lake County-Tooele County nonattainment area. This submittal included a map redefining the boundaries of the nonattainment area as Salt Lake County and eastern portions of Tooele County above 5,600 feet. In 1985, EPA approved the SIP revision (demonstrating attainment of the NAAQS for SO₂) on an interim basis contingent upon resolution of certain issues surrounding Good Engineering Practice (GEP) stack height demonstration. The State submitted its GEP SIP in 1986, with subsequent submittals in 1986, 1987, and 1988. EPA proposed approval of the GEP SIP in 1988, but subsequent comment regarding land ownership on elevated terrain delayed final approval.

In 1990 the Clean Air Act was amended resulting in an automatic SIP call for any nonattainment area that did not have a fully approved SIP. Since the Utah SIP had never received full approval, the State was again required to submit SIPs for both GEP stack height and the control of SO₂ in the Salt Lake County-Tooele County nonattainment area. All other areas of the State, including Cedar City, were shown to have ambient air that is "better than national standards." The appropriate SIP revisions were submitted in 1991 and 1992 respectively, and approved by EPA in 1994.

There has been no violation in the Utah nonattainment area of any primary or secondary National Ambient Air Quality Standard for SO₂ since 1981. As will be discussed, this lack of monitored violations is the result of permanent and enforceable emission reductions at the emission points that were responsible for the violations which led to the area's original nonattainment status. Thus, the State is requesting redesignation of the Salt Lake County-Tooele County nonattainment area to attainment in accordance with Clean Air Act Section 107(d)(3)(D).

b. Prerequisites to Redesignation

Clean Air Act Section 107(d)(3)(D) allows any state governor to request redesignation of any area within the state. Section 107(d)(3)(E), (i) through (v), sets forth pre-conditions which the Administrator must verify prior to approving any request to redesignate an area from nonattainment to attainment. These conditions are paraphrased in Table 1.

Table 1. Prerequisites to Redesignation

Category	Requirement	Reference	Addressed in Section
Attainment of Standard	The State must provide two complete, consecutive calendar years of quality-assured monitoring data in accordance with 40 CFR Part 58	CAA: Sec 107(d)(3)(E)(i)	IX.B.6.b(1)
State Implementation Plan Approval	The State must verify that a fully approved SIP is in place for the area under Clean Air Act section 110(k)	CAA: Sec 107(d)(3)(E)(ii), Sec 110(k)	IX.B.6.b(2)
Permanent and Enforceable Emissions Reductions	The State must verify that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from enforcement of the SIP, federal regulations, and other permanent and enforceable regulations.	CAA: Sec 107(d)(3)(E)(iii)	IX.B.6.b(3)
Maintenance Plan	To be redesignated to attainment, the State must have a fully approved maintenance plan in place.	CAA: Sec 107(d)(3)(E)(iv)	IX.B.6.b(4)
Section 110 and Part D Requirements	The State must verify that the area has met all requirements applicable to the area under Section 110 and Part D.	CAA: Sec 107(d)(3)(E)(v), Sec 110(a)(2), Sec 171	IX.B.6.b(5)

(1) *Attainment of Standard*

CAA 107(d)(3)(E)(i) - *The Administrator determines that the area has attained the national ambient air quality standard.* The national ambient air quality standards (NAAQS) for SO₂ are as follows: primary standards include an annual (calendar year) arithmetic mean of 0.03 ppm (80 µg/m³) and a 24-hour midnight to midnight block average of 0.14 ppm (365 µg/m³). An exceedance of the annual standard is a violation of the NAAQS, as are two exceedances of the 24-hour standard in any one calendar year at any one monitoring site. In addition there is a secondary standard of 0.5 ppm (1,300 µg/m³) measured as a 3-hour block average, calculated from successive non-overlapping 3-hour blocks starting at midnight. Two exceedances of the 3-hour standard in a calendar year at any one monitoring site is a violation of the NAAQS. In order to demonstrate attainment of these standards, a State must collect eight consecutive calendar quarters (2 years) of ambient data that is below the levels outlined above.

Ambient SO₂ data is collected in the nonattainment area as part of the state's monitoring network (Figure 1) which has been approved in accordance with 40 CFR Part 58 and its appendices. As shown by Table 2, none of these monitors has recorded a violation of the NAAQS since 1981. The 3-hr secondary standard was exceeded once at the Lakepoint site near the Great Salt Lake in 1992, but there was no violation of the standard. [Note: This site is not the high-elevation site that was also called Lakepoint; rather, it is one of four monitoring locations referred to as the "Beach" site (identified in Figure 1 as sites 5, 6, 7, and 8.) The purpose of the "Beach" site is to monitor impact from the copper smelter, a significant source of SO₂. It was relocated several times (with approval from EPA), but continues to serve this purpose.

The nonattainment area, as defined, also includes the eastern portion of Tooele County above 5,600 feet MSL. Although there are no monitors located in this portion of the nonattainment area, the modeling analysis discussed in Section IX.B.3.d of the SIP insures attainment of the standards in the elevated

1 terrain, given the emission limits described therein. These limits were in effect throughout the period of
2 data collection at other low-level monitors, and continue to remain federally enforceable.
3
4
5
6
7
8

Figure 1. SO₂ Monitors in the Salt Lake-Tooele County Nonattainment Area, 1981 - 2003



Monitor Codes

- 1 - 1925 N. 900 W., Salt Lake City, Ut.; Airs No. 49-035-0007
- 2 - 1795 N. 1000 W., Salt Lake City, Ut.; Airs No. 49-035-0012
- 3 - 1420 S. 1100 W., Salt Lake City, Ut.; Airs No. 49-035-0009
- 4 - 2935 S. 8560 W., Magna, Ut.; Airs No. 49-035-1001
- 5 - 12600 W. I-80, Great Salt Lake St. Park; Airs No. 49-035-2002
- 6 - 11551 W. I-80, Salt Lake County, S.E. of Beach Exit; Airs No. 49-035-0005
- 7 - 1282 S. 12100 W., Lakepoint, Ut.; Airs No. 49-035-2003
- 8 - 1200 S. 12100 W., Lakepoint, Ut.; Airs No. 49-035-2004
- 9 - 610 S. 200 E., Salt Lake City, Ut. (Co. Health Dept. Bldg.); Airs No. 49-035-3001
- 10 - 8536 W. SR-48, Copperton, Ut; Airs No. 49-035-4001

Table 2. Salt Lake-Tooele County Nonattainment Area Monitoring Network, 1981 - 2003

Year	Monitors*	Annual	24-hr	3-hr
1981	4, 5, 9, 10	V ₁	X ₄₀₅	X ₅
1982	1, 3, 4, 5, 9, 10	---	---	---
1983	3, 4, 5, 9, 10	---	---	---
1984	2, 4, 9, 10	---	---	---
1985	2, 4, 9, 10	---	---	---
1986	2, 4, 6, 9, 10	---	---	---
1987	2, 4, 6, 9	---	---	---
1988	2, 4, 6, 9	---	---	---
1989	2, 4, 6, 9	---	---	---
1990	2, 4, 6, 9	---	---	---
1991	2, 4, 6, 7, 9	---	---	---
1992	2, 4, 7, 8, 9	---	---	X ₇
1993	2, 4, 8, 9	---	---	---
1994	2, 4, 8, 9	---	---	---
1995	2, 4, 8	---	---	---
1996	2, 4, 8	---	---	---
1997	2, 4, 8	---	---	---
1998	2, 4, 8	---	---	---
1999	2, 4, 8	---	---	---
2000	2, 4, 8	---	---	---
2001	2, 4, 8	---	---	---
2002	2, 4, 8	---	---	---
2003	2, 4, 8	---	---	---

V = Violation of National Ambient Air Quality Standard (NAAQS); Subscript denotes monitoring site at which the violation occurred.

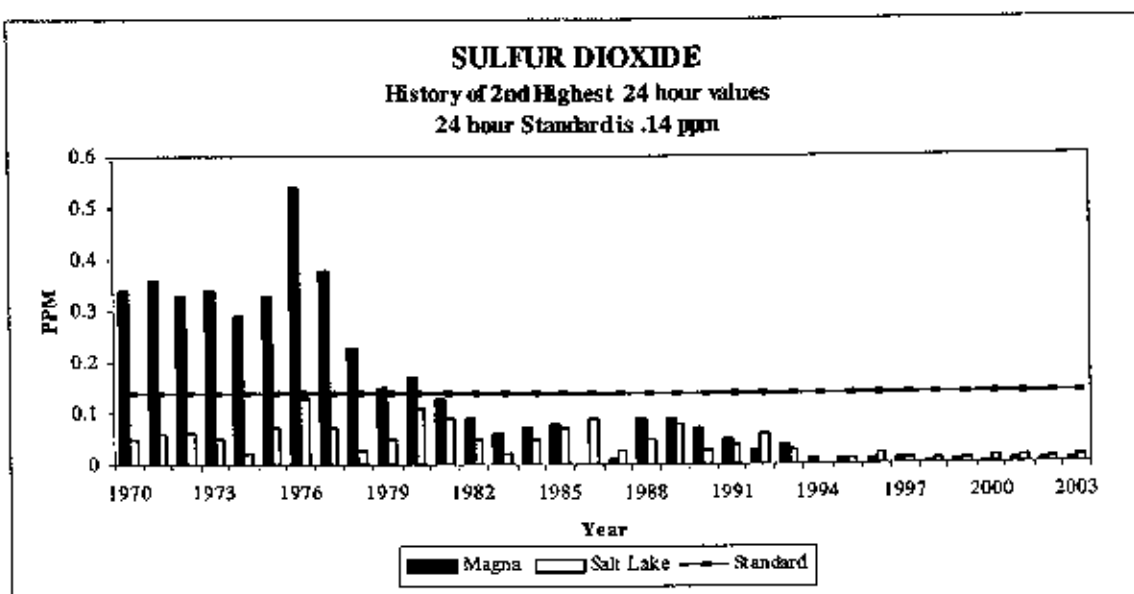
X = Measured Exceedance of the NAAQS, but not a violation; Subscript denotes monitoring site at which the exceedance was recorded.

* Monitor Codes:

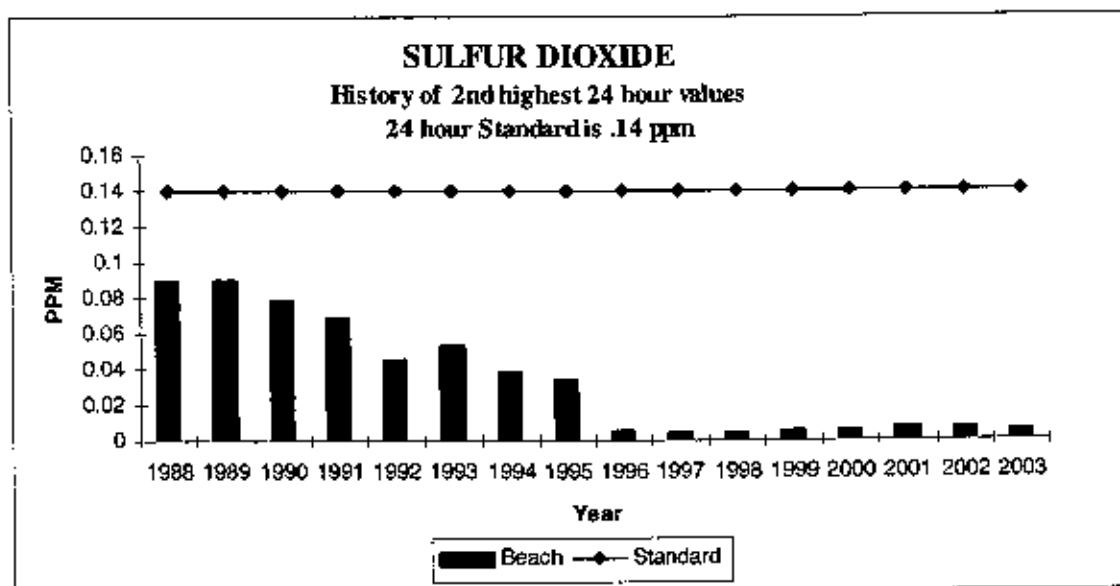
- 1 - 1925 N. 900 W., Salt Lake City, Ut.; Airs No. 49-035-0007
- 2 - 1795 N. 1000 W., Salt Lake City, Ut.; Airs No. 49-035-0012
- 3 - 1420 S. 1100 W., Salt Lake City, Ut.; Airs No. 49-035-0009
- 4 - 2935 S. 8560 W., Magna, Ut.; Airs No. 49-035-1001
- 5 - 12600 W. I-80, Great Salt Lake St. Park; Airs No. 49-035-2002
- 6 - 11551 W. I-80, Salt Lake County, S.E. of Beach Exit; Airs No. 49-035-0005
- 7 - 1282 S. 12100 W., Lakepoint, Ut.; Airs No. 49-035-2003
- 8 - 1200 S. 12100 W., Lakepoint, Ut.; Airs No. 49-035-2004
- 9 - 610 S. 200 E., Salt Lake City, Ut. (Co. Health Dept. Bldg.); Airs No. 49-035-3001
- 10 - 8536 W. SR-48, Copperton, Ut; Airs No. 49-035-4001

Figures 2 and 3 have been included to illustrate the magnitude of improvement in monitored SO₂ concentrations as well as the continuous nature of improvement since the late '70s. Such a wide margin of safety beneath the NAAQS suggests that it would be unlikely to again see concentrations that exceed the health standard for SO₂. As will be discussed later, there are definite reasons for the improvements seen in these charts.

1 **Figure 2. Monitored Values, 1978 - 2003, Magna and Salt Lake Monitors**
 2
 3



4 **Figure 3. Monitored Values, 1988 - 2003, Beach Monitor**



5
 6 (2) *State Implementation Plan Approval*

7 CAA 107(d)(3)(E)(ii) - The Administrator has fully approved the applicable implementation plan for the
 8 area under section 110(k). As discussed in Section IX.B.1, the Clean Air Act Amendments of 1990
 9 required the State to submit a SIP revision to address nonattainment of the SO₂ NAAQS in Salt Lake
 10 County and the eastern portion of Tooele County above 5,600 feet MSL. In addition, in response to the
 11 Clean Air Act Amendments of 1990, the State had to re-visit the issue of stack height as it pertained to

"Good Engineering Practice" (GEP). The GEP SIP was submitted on December 23, 1991, and the SO₂ SIP was submitted to EPA on May 15, 1992. EPA formally approved, in full, the GEP SIP and the SO₂ SIP in the Federal Register on December 14, 1994. The effective date was January 13, 1995.

(3) Permanent and Enforceable Emissions Reductions

CAA 107(d)(3)(E)(iii) - *The Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions.* As discussed in Section IX.B.3, the SO₂ impact that led to the area's nonattainment designation in 1978 was attributed entirely to Kennecott Utah Copper, and primarily to its smelting process. Hence, the history of emission reductions at Kennecott is directly related to the observable improvement in air quality. This history is discussed below and also depicted in Figure 4 and Table 4.

Historic Emission Levels - Until 1978, copper concentrate was smelted in reverberatory furnaces to produce copper matte, which was converted to copper in Pierce-Smith converters. Most of the SO₂ in the converter gas was captured by single-contact acid plants, but the SO₂ from the reverberatory furnaces was uncontrolled. In 1978-1979, the reverberatory furnaces were replaced by Noranda reactors, and a new single-contact acid plant was added so that SO₂ from both reactors and converters would be controlled. Also, the old 400-foot stacks were replaced by a 1200-foot stack to reduce the effect of terrain-induced downwash. From 1978 through 1982, a series of improvements was made to reduce fugitive emissions or to capture and route them up the 1200-foot stack. ~~[These improvements in technology have been directly responsible for the end to violations of the NAAQS. A comparison of the 24-hour concentrations recorded at Magna and shown in Figure 2 underscores the effect these technological improvements had.]~~

In 1981, the Utah administrative rules for air quality (R307) were revised to include emission limitations and control requirements for Kennecott's smelter main stack and smelter fugitive emissions. ~~[These changes reflected the changes in technology.]~~ Enforceable improvements in emissions control were also made at Kennecott's ~~[power plant, molybdenite heat treaters, and refinery. These changes were also reflected in the rules, along with a standard for the sulfur content in coal burned at Kennecott's power plant.]~~

Also in 1981, Utah submitted to EPA a SIP demonstrating attainment of the SO₂ standards. That SIP was based on these technological improvements. The modeling analysis done by the State, as part of that SIP, demonstrated attainment of the SO₂ NAAQS in the low terrain at the Beach and Magna sites. It used the same emission rates for the 1200-foot stack, molybdenite heat treaters, refinery, and power plant that appeared in R307. It also relied on estimates of smelter fugitive emissions that were most directly responsible for the monitored exceedances of the NAAQS at those locations. Since these emissions were difficult to actually quantify, the SIP made no attempt to establish an enforceable limit on fugitive emissions. Rather, it required Reasonable Available Control Techniques (RACT) to address the prevention and capture of fugitive emissions.

The State's modeling analysis did not address SO₂ concentrations in the elevated terrain. EPA, however, made some assessments in the high terrain on accessible property that was not owned by Kennecott, and found no violations of the SO₂ standards. The emission rates relied upon in that analysis were the limitations for the main stack which appeared in R307. No other source of SO₂ was considered to impact on the high terrain.

The improvements in technology that were made between 1978 and 1982 have been directly responsible for the end to violations of the SO₂ NAAQS. The trend of the 24-hour concentrations recorded at Magna

1 for the same time period, and shown in Figure 2, underscores the effect that these technological
2 improvements had.

3
4 **Current Emission Levels** - In 1991 the State promulgated its PM10 SIP for the Salt Lake County
5 nonattainment area. Sulfur dioxide was identified as a precursor to secondary PM10 formation, and the
6 control strategy for PM10 relied heavily on the control of SO₂ emissions in Salt Lake and southern Davis
7 Counties. To comply with the PM10 SIP emission limits (as well as other reasons), Kennecott again
8 upgraded its smelter technology, replacing the Noranda smelter with flash furnace technology, replacing
9 the Pierce-Smith converters with a new flash converting furnace, and replacing the single contact acid
10 plants with a double contact acid plant. These changes, collectively called the smelter modernization,
11 actually took place during a period of time from 1992 through 1995.

12
13 Smelter modernization effectively reduced the SO₂ emission limit at the main stack from 18,200 lb/hr
14 (annual average) to 3,204 lb/hr. Since the impact on elevated terrain within the SO₂ nonattainment area is
15 due entirely to emissions from the 1200-foot stack, the smelter modernization is obviously pertinent to
16 any discussion of SO₂ attainment.

17
18 Concerning the impact at low level, there were a number of other sources that were determined, by the
19 1981 SIP, to be significant. These included the molybdenite heat treaters, the refinery, the power plant,
20 and smelter fugitive emissions. These sources were affected by the smelter modernization in the
21 following ways:

22
23 **Molybdenite heat treaters** - This process had occurred at two distinct locations (Arthur and Magna.)
24 The 1981 SIP had relied upon 70% control of SO₂ via wet scrubbers to achieve an enforceable emission
25 rate of 139 lb/hr at each facility. In the current configuration, all molybdenite heat treating takes place at
26 the Copperton Concentrator, and the allowable emission rate is only 26.2 lb/hr. Interestingly, a tracer
27 study performed to better understand the SO₂ impact at the Beach location indicated that the impact from
28 the moly heat treaters was greater than had been believed. So too, concluded the EPA, was the effect of
29 the 70% removal efficiency at these sources.

30
31 **Refinery** - The 1981 SIP required that a new wet scrubber be constructed to achieve an allowable
32 emission rate of 117 lb/hr. In the current configuration, it is no longer necessary to limit SO₂ emissions at
33 the refinery. This source of low level SO₂ emissions has essentially been eliminated.

34
35 **Power Plant** - The 1981 SIP essentially codified the average sulfur content of the coal that was burned in
36 1979. The allowable rate was 0.48 lb sulfur per million btu. The power plant was held to a similar limit
37 in the 1991 PM10 SIP, 0.52 lb sulfur per million btu (annual basis), which represents a relaxation of the
38 1981 limit. Nevertheless, the 1981 limit never represented any actual control of SO₂ emissions. Given
39 the degree of improvement observed at the low-level monitors, in conjunction with the control strategies
40 directed at the other low-level sources, the State's conclusion is that the 0.48 lb sulfur per million btu
41 limitation on coal sulfur content is not necessary to ensure compliance with the SO₂ NAAQS.

42
43 **Smelter Fugitive Emissions** - While difficult to quantify, the 1981 SIP identified smelter fugitive
44 emissions as the most significant contributor to the exceedances observed at low elevation. The SIP
45 required RACT as it applied to the gas handling systems, acid plant effluent, and prevention of
46 malfunctions. These changes in equipment and operating procedures applied to the smelter as it was
47 configured prior to modernization. With construction of the new smelter building and associated facilities
48 such as the acid plant, the specific details of the prescribed RACT from 1981 were superseded by RACT
49 elements envisioned by the 1991 PM10 SIP. Again, the focus was on the operation and maintenance of a
50 newly constructed gas handling system. It also required contained conveyance of acid plant effluent
51 solutions. The modeled demonstration of PM10 attainment included in the 1991 SIP relied upon an

1 estimate of 4,380 tons of SO₂ per year for smelter fugitive emissions (1,000 lb/hr.) Technical support
2 documentation from that SIP indicates that un-captured fugitive emissions from the smelter were
3 approximately 2,500 lb/hr.

4
5 New - SO₂ emission limits for the smelting process, as well as for the power plant, refinery and
6 molybdenum heat treaters were incorporated into the Utah SIP at Section IX.H (formerly Appendix A to
7 Section IX, Part A), which was approved as part of the PM10 SIP. These limits are, therefore, federally
8 enforceable.~~[and are therefore federally enforceable.]~~

9
10 SIP Section IX.H ~~[(Emission Limitations)]~~ was also updated in 1992 and submitted to EPA on May
11 15, 1992 as part of the SO₂ SIP revision to protect the 3-hour secondary standard. The new smelter limits
12 are nearly an order of magnitude lower than those relied on in the 1981 SIP.~~[The current actual~~
13 ~~emissions and emissions allowed by the current Approval Order and Title V permit are yet an order of~~
14 ~~magnitude less than that.]~~

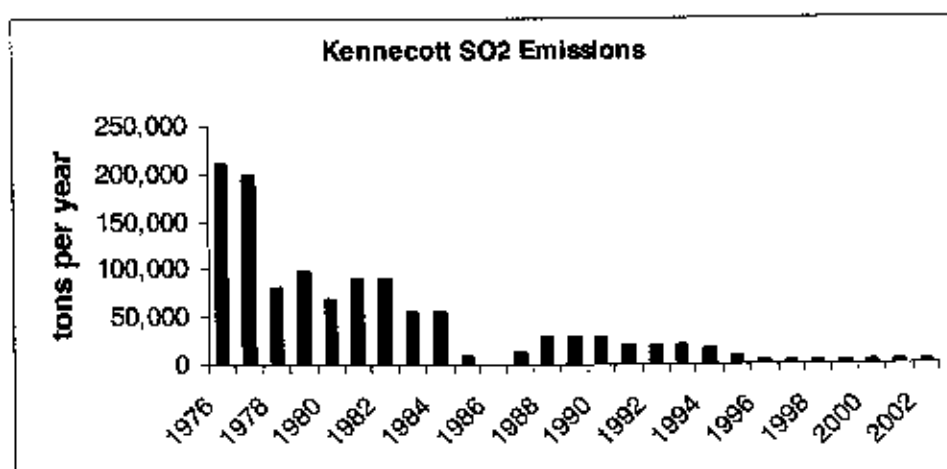
15
16 Again referring to Figures 2 and 3, the sequence of events described above is entirely relevant to the
17 sequence of SO₂ concentrations monitored at Magna and at the Beach sites. It is worth pointing out that
18 these two monitors are likely sensitive to different modes of SO₂ emissions and release points. The data
19 collected at the Beach site(s) is largely influenced by low level fugitive emissions, and the reductions seen
20 in these values are indicative of improvements made in capturing these emissions as part of the smelter
21 modification¹ in the early 1990s as well as KUC's attention to operational practices during the years
22 between promulgation of the PM10 SIP and actual construction of the new smelter. The data collected at
23 the Magna site documents not only the effect of the 1,200 foot stack, but also the other improvements
24 made as part of the 1981 SO₂ SIP and the smelter modernization in the early 1990s. Also of interest is the
25 data spanning the end of 1985 through most of 1987, during which time the power plant and smelter were
26 down for economic reasons. This serves to illustrate the singular nature of the sources affecting this
27 monitor.

28
29 Figure 4 shows, in tons per year, the trend of SO₂ reductions at KUC from 1976 through 2003.²
30
31

¹ As noted in Section IX.B.3.c, the estimate of fugitive emissions routed out the 1200-foot stack as part of smelter modifications was 4500 lb/hour (24-hour basis).

² DAQ did not require emission inventories in 1989 or 1991. As per the KUC letter of March 2, 2000, the emissions in 1989 were about the same as those in 1988, and the emissions in 1991 were about the same as those in 1992.

1 **Figure 4. Kennecott SO₂ Emissions, 1976-2002**



2
3
4 Referring again to Figure 2, it could also be inferred from the way in which the data from the two
5 monitors tracks that SO₂ concentrations throughout the Salt Lake valley are influenced to some degree by
6 meteorology. In particular, low level temperature inversions may serve to concentrate SO₂ at ground
7 level. However, the correlations observed between emission reductions at KUC and the monitored
8 concentrations at the Beach and Magna sites would suggest that improvement in air quality cannot be
9 ascribed solely to favorable meteorology. In fact, the low concentrations observed at the Salt Lake sites
10 since 1993 track quite well with significant SO₂ emission reductions required in the vicinity of these
11 measurements as part of the PM₁₀ SIP. Although this SIP was promulgated in 1991, it was not until
12 December 10, 1993, that application of the associated control elements was required. Also effective in
13 1993 was the federal requirement limiting the sulfur content in on-road diesel fuel to no more than 0.05%.
14 The average sulfur content before 1993 was 0.43%. Note that the data in Figure 2 labeled "Salt Lake"
15 was collected at the County Health Department building until 1994, and at the North Salt Lake site (1795
16 S. 1000 W.) thereafter.

17 (4) *Maintenance Plan*

18 CAA 107(d)(3)(E)(iv) - *The Administrator has fully approved a maintenance plan for the area as meeting*
19 *the requirements of section 175A.* This is discussed separately in Section IX.B.6.c below.

20 (5) *Section 110 and Part D Requirements*

21 CAA 107(d)(3)(E)(v) - *The State containing such area has met all requirements applicable to the area*
22 *under section 110 and part D.* Section 110 of the CAA deals with the broad scope of state
23 implementation plans and the capacity of the respective state agency to effectively administer such a plan.
24 Sections I through VIII of Utah's SIP contain information relevant to these criteria. Part D deals
25 specifically with plan requirements for nonattainment areas, and includes the requirements for a
26 maintenance plan in Section 175A. The fact that the attainment plan for SO₂ (SIP Section IX.B.1 - 5) has
27 been fully approved by the EPA would suggest that Utah's air program meets the Part D requirements.
28
29

c. Maintenance Plan

The specific requirements for an approvable maintenance plan are outlined in CAA Section 175A. These criteria are paraphrased below in Table 3, and addressed in turn.

Table 3. Requirements of a Maintenance Plan			
Category	Requirement	Reference	Addressed in Section
Maintenance Demonstration	Provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation. Demonstration is made showing that the future mix of sources and emission rates will not cause a violation of the NAAQS.	CAA: Sec 175A(a)	IX.B.6.c(1)
Revise in 8 Years	The State must commit to revising the maintenance plan 8 years after redesignation	CAA: Sec 175A(b)	IX.B.6.c(2)
Continued Implementation of Nonattainment Area Control Strategy[SIP Requirements Remain in Force]	The Clean Air Act requires continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions.[Clean Air Act Part D requirements must remain in place until the area is redesignated to attainment.]	CAA: Sec 175A(c), CAA Sec 110(l), Calcagni memo	IX.B.6.c(3)
Contingency Measures	Areas seeking redesignation from nonattainment to attainment are required to develop contingency measures that include State commitments to implement additional control measures in response to future violations of the NAAQS.	CAA: Sec 175A(d)	IX.B.6.c(4)
Verification of Continued Maintenance	The maintenance plan must indicate how the State will track the progress of the maintenance plan.		IX.B.6.c(5)

(1) Maintenance Demonstration

CAA 175A[-](a) - Each State which submits a request under section 107(d) for redesignation of a nonattainment area as an area which has attained the NAAQS shall also submit a revision of the applicable implementation plan to provide for maintenance of the NAAQS for at least 10 years after the redesignation. The plan shall contain such additional measures, if any, as may be required to ensure such maintenance. As discussed above in Section IX.B.6.b, there has not been a violation of any SO₂ NAAQS since 1981 at any of the monitoring locations in the nonattainment area. This is evidence that the improvements made at the smelter in the late 1970s and early 1980s resulted in emission levels and dispersion characteristics that were sufficient to achieve and maintain the SO₂ NAAQS at low elevation (4,200 - 5,600 feet). These improvements included replacement of the uncontrolled reverberatory furnaces with Noranda reactors and the associated acid plant, control of low level fugitive and stack emissions, and the addition of the 1,200-foot stack.

Dispersion modeling done in conjunction with the 1981 SO₂ SIP had predicted this result, using emission rates that reflected these improvements in emission characteristics. These emission rates were incorporated into the Utah administrative rules for air quality (R307.) and pertained to the following

sources: smelter fugitive emissions, the molybdenite heat treaters at Magna and Arthur, the Refinery Fusion Kiln, and the power plant. These limits are shown as part of Table 4[-] below.

These emission levels have been further reduced by even more stringent SO₂ emission limitations that reflect yet another period of smelter modernization in the early 1990s. Since the new emission limits represent emission rates that are significantly less than what was modeled to show attainment of the SO₂ NAAQS in the 1981 SIP, it follows that the demonstration of attainment and maintenance of the SO₂ NAAQS at low levels is preserved via the permanence and continued enforceability of the new emission limits at these sources, to the extent that they still exist. The new limits, summarized below, have been incorporated into the Utah SIP at the following locations:

Source	Limit	Reference ³
Smelter Fugitive Emissions	RACT	Section IX.H.2.b.V.A
Molybdenite Heat Treaters	26.2 lb/hr	Section IX.H.2.b.X
Utah Power Plant	0.52 lb/mmbtu	Section IX.H.2.b.Z

It should be pointed out that all moly heat treating now takes place at the Copperton Concentrator, and that the former facilities at Magna and Arthur no longer exist. Thus it is no longer necessary to rely on the emission limits that formerly applied. Likewise, the Refinery Fusion Kiln is no longer a source of SO₂ emissions.

Table 4 illustrates the succession of emission limits at the sources responsible for elevated concentrations of SO₂ at low elevations. It also shows actual emission inventories for the periods of time represented by the enforceability of these various limits. The progression of SO₂ control throughout the last 25 years is apparent in this table.

At high elevations (above 5,600 feet), the Kennecott Smelter is the only likely source of concern. The discussion in Section IX.B.3.d, Analysis of Control Strategy, shows that the emission levels allowed by the current SO₂ SIP are more than adequate to assure maintenance of the SO₂ NAAQS at high-elevation locations accessible to the public. In fact, the modeling and monitoring relationships outlined in Section IX.B.3.d suggest a safety factor of roughly 100%. Utah will continue to rely on this modeling demonstration to assure continued maintenance of the SO₂ NAAQS in the elevated terrain. The emission limits used therein are incorporated in the Utah SIP at Section IX, Part H.2.b.V.B (formerly 2.2.V.B. of Appendix A to Section IX, Part A), and as such remain federally enforceable. Table 4 also illustrates the effect that smelter modernization had on the emission rate for the 1200-foot stack.

³ These references were formerly 2.2.V.A., 2.2.X, and 2.2.Z, respectively of Appendix A to Section IX, Part A.

Table 4. Kennecott: Historical SIP Limits and Inventories (SO₂, tons/year)

Sources	impacted area	1979	Limits	1990	1991 SIP Limits	1999	1991 SIP Limits
main stack	elevated terrain	67,900	none	22,382	79,700 tpy	628.8	14,200 tpy
Smelter Fugitives	Beach / Magna	16,600	none	4,380	RACT	157.7	RACT
Utah Power Plant	Beach / Magna	4,759	none	2,905	0.48 lb/mmblu	2,766.1	0.52 lb/mmblu
Magna Moly Heat Treater	Beach / Magna	1,988	none	NA	608 tpy	NA	discontinued
Arthur Moly Heat Treater	Beach / Magna	1,888	none	NA	608 tpy	NA	discontinued
Copperton Moly Heat Treater		NA	NA	0.7	NA	0.1	115 tpy
Refinery	Beach / Magna	1,512	none	4.2	512 tpy	0.4	none
subtotal	Beach / Magna	26,747		7,290		2,944	
total		94,647		29,672		3,574	

Notes:

1. The 1979 inventory was compiled as part of the 1981 SIP revision.
2. The 1990 inventory represents the period between the first round of smelter modifications and the second round, which coincided with the PM₁₀ SIP.
3. The 1999 inventory represents the period after the second smelter modification.
4. The 1991 SIP "ton/yr" limits were actually expressed in lbs/hr (16,200 annual avg. at the main stack, 139 lb/hr at each Moly Heat Treater, and 117 lb/hr at the refinery fusion kiln).
5. The 1991 SIP limits actually come from the PM₁₀ SIP. The "ton/yr" limits were actually expressed in terms of lbs/hr (3,240 lb/hr annual avg at the main stack, 26.2 lb/hr for the Moly Heat Treater at the Copperton Concentrator).

As part of the 1992 SO₂ SIP, Utah also made revisions to the rule concerning sulfur content in fuels (R307-203.) These revisions involved the addition of a 24-hour averaging period for determining the sulfur content of coal, fuel oil, and fuel mixtures, and to specify the ASTM methods to be used to demonstrate compliance with the limitation and reporting requirement.

Since these emission limitations remain federally enforceable and have been sufficient to ensure continued attainment of the SO₂ NAAQS, there is no need to require any additional control measures to maintain the SO₂ NAAQS.

These conditions demonstrate maintenance through 2016.

Concerning the banking of any emission reduction credits for SO₂, the emission levels identified above and incorporated into the Utah SIP at Section IX, Part H (formerly Appendix A to Section IX, Part A,) should serve to establish a baseline for the emission rates relied upon by the 1992 SO₂ attainment SIP as well as this maintenance plan. These emission reduction credits shall be allowed to the extent that they are established by actual, verifiable, and enforceable reductions in SO₂ emissions below the levels relied upon by the 1992 SO₂ attainment SIP and this maintenance plan.

[As discussed above in Section IX.B.6.b, there has not been a violation of any SO₂ NAAQS since 1981 at any of the monitoring locations in the nonattainment area. This demonstrates that the improvements made at the smelter, including replacement of the uncontrolled reverberatory furnaces with Noranda reactors and the associated acid plant, control of low-level fugitive emissions, and the addition of the 1,200 foot stack, resulted in emission levels and dispersion characteristics that were sufficient to achieve and maintain the SO₂ NAAQS at low elevation (4,200–5,600 feet). These emission levels have been further reduced by even more stringent SO₂ emission limitations which reflect yet another period of smelter modernization, as well as the low sulfur diesel fuel requirements. In addition, all other significant sources of SO₂ in Salt Lake County were controlled in the PM₁₀ SIP to levels far below those present throughout the 1980s. Since these emission limitations remain federally enforceable, there is no need to require any additional control measures to maintain the SO₂ NAAQS.

At high elevations (above 5,600 feet), the Kennecott Smelter is the only likely source of concern. The discussion in Section IX.B.3.d (Analysis of Control Strategy) shows that the emission levels allowed by the current SO₂ SIP are more than adequate to assure maintenance of the SO₂ NAAQS at high elevation locations accessible to the public. In fact, the modeling and monitoring relationships outlined in Section IX.B.3.d suggest a safety factor of roughly 100%. These emission limits remain federally enforceable, and are not expected to increase over the next ten years.]

(2) *Revise in Eight Years*

CAA 175A[-](b) - *Eight years after redesignation, the State must submit an additional plan revision which shows maintenance of the applicable NAAQS for an additional 10 years.* The State of Utah agrees to fulfill this obligation at the appropriate point in time.

(3) *SIP Requirements Remain in Force*

CAA 175A[-](c) - *Until such plan revision[redesignation] is approved and an area is redesignated as attainment, the requirements of CAA Part D, Plan Requirements for Nonattainment Areas, shall remain in force and effect. The Clean Air Act requires the continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions. Utah will continue to implement the emissions limitations and measures from the SO₂ SIP, with the following exception: upon redesignation to attainment, PSD requirements will apply in lieu of nonattainment New Source Review requirements.* [Utah agrees that it will continue to interpret these requirements as applicable to the nonattainment area until it has been redesignated to attainment. In addition, there are certain provisions of the administrative rules for air quality (R307) which will continue to apply even after the area has been officially redesignated to attainment for SO₂. Specifically, Utah requires a Best Available Control Technology review of any new or modified source, of any size, located in any part of the State.]

(4) *Contingency Measures*

CAA 175A[-](d) - *Each maintenance plan shall contain contingency measures to assure that the State will promptly correct any violation of the standard which occurs after the redesignation of the area to attainment. Such provisions shall include a requirement that the State will implement all control measures which were contained in the SIP prior to redesignation. Utah has implemented all measures contained in the plan, and will continue to do so even after redesignation. This revision need only address such contingency measures as may be necessary to mitigate any future violation of the standard.*

The State will rely upon ambient SO₂ monitoring to determine whether a violation has occurred. Upon monitoring a violation of the SO₂ NAAQS, the State will take the following actions.

- The State will identify the source(s) of SO₂ causing the violation, and report the situation to EPA Region VIII within four months.
- The State will identify a means of corrective action within six months. The maintenance plan contingency measures to be considered and selected will be chosen from the following list or any other emission control measures deemed appropriate based on a consideration of cost-effectiveness, emission reduction potential, economic and social considerations, or other factors that the State deems appropriate:
 - Re-evaluate the permissible sulfur content of fuels for commercial and industrial sources, as established in R307-203;

- Further controls on stationary sources.
- The State will require implementation of such corrective action no later than one year after the violation was confirmed.

[There are in fact numerous SO₂ emission limits contained in SIP Section IX Part II which were taken as part of the PM10 effort in 1991 that were never relied upon in the SO₂ attainment plan. In addition, Utah's Regional Haze SIP⁴ sets a declining cap on SO₂ emissions that can affect emissions in the Salt Lake County area in future years. Therefore, they may be considered pre implemented contingency measures. Furthermore, the benefits of these measures could be expected to manifest themselves in various locations within the nonattainment area, just as any future violation of the SO₂ NAAQS might actually be due to somewhat localized circumstances. For this reason, the State reserves the right to evaluate any such incident prior to naming a specific measure to remedy the situation. Therefore, rather than specifying certain control measures, Utah instead commits to the following schedule whereby any violation of the SO₂ NAAQS will be assessed with respect to the source of such violation and the appropriate action to be taken.

Upon monitoring a violation of the SO₂ NAAQS, the State will:

- * ~~report the situation to EPA Region VIII within four months;~~
- * ~~identify the source(s) of the SO₂ causing the violation within six months;~~
- * ~~identify any corrective action within nine months; and~~
- * ~~incorporate such action and a schedule for compliance into the Utah SIP within 12 months.]~~

(5) Verification of Continued Maintenance

Implicit in the requirements outlined above is the need for the State to determine whether the area is in fact maintaining the standard it has achieved. There are two complementary ways to measure this: 1) by monitoring the ambient air for SO₂, and 2) by inventorying emissions of SO₂ from its sources.

The State will continue to maintain an ambient monitoring network for SO₂ in accordance with 40 CFR Part 58 and the Utah SIP. The State anticipates that the EPA will continue to review the ambient monitoring network for SO₂ each year, and any necessary modifications to the network will be implemented.

The State will also continue to collect actual emissions inventory data from all sources of SO₂ in Salt Lake County in excess of 25 tons per year (as per R307-150). More pertinent to the continued maintenance of the SO₂ NAAQS in the former nonattainment area is the actual emissions of SO₂ from Kennecott. Emissions from the 1200-foot stack at Kennecott are recorded by a continuous emissions monitor (CEM), and are reported to the DAQ on a monthly basis for purposes of compliance. All other sources at Kennecott are inspected by DAQ to ensure compliance with relevant SIP conditions.

⁴ Utah State Implementation Plan, Section XX, Regional Haze, submitted to EPA on December 12, 2003.]

NATURAL EVENTS



State of Utah

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Environmental Quality

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Executive Director

DIVISION OF AIR QUALITY
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Director

OLENE S. WALKER
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DAQ-066-2004

TO: Utah Air Quality Board

THROUGH: Richard W. Sprott, Executive Secretary

FROM: David E. B. Strohm II, Environmental Scientist

DATE: December 20, 2004

SUBJECT: Proposal for Final Approval: Natural Events Action Plan

Recognizing that uncontrollable natural events can have an effect on air quality and attainment of the National Ambient Air Quality Standards (NAAQS), the US Environmental Protection Agency (USEPA) issued the Natural Events Policy (NEP) on May 30, 1996. The NEP lays out the procedures by which States flag monitoring data that is collected during these natural events such as high winds, wild fires, and seismic/volcanic activity. The NEP also requires States to develop a Natural Events Action Plan (NEAP) to protect public health in areas where the NAAQS standard may be exceeded due to naturally occurring events.

During the last three years, the Salt Lake Valley has experienced six exceedences of the 24-hour NAAQS for Particulate Matter with a nominal aerodynamic diameter of 10 microns or less. The specific dates were February 25, 2002, April 15, 2002, February 1, 2003, April 1-2, 2003, and May 10, 2004, at various PM₁₀ monitors along the Wasatch Front. Analysis of each of these events pointed to the events having been caused by high wind speeds and resultant wind blown dust. The monitored data from each of these events has been submitted to EPA and flagged as having been influenced by a natural event in accordance with the NEP.

NEAP Comment Summary

Submitted By:	Comment:	Response:
Kennecott Utah Copper Corporation	Add Utah's current fugitive dust rules in order to present that BACT is in place for any new or modified source	Added R307-401, R307-205, and R307-309 to Appendix I as well as made mention of them in element 4 of the NEAP
	Use Utah's fugitive dust rules to demonstrate that sources outside of the PM10 SIP are still regulated in Utah with respect to fugitive dust.	Added text in element 5 of the NEAP to indicate the affect of having R306-309, and R307-205 in place with respect to sources not dealt with in the 1992 PM10 SIP process
	Make changes to Appendix I to indicate the current approval orders that govern Kennecott's various operations	Updated Appendix I to make all the mentions of approval orders current
	Table 3 needed units of emissions	Added units of emissions to Table 3
EPA	In the Executive Summary, and throughout the NEAP, the text and tables should be corrected to reflect that there have been six high-wind exceedances over the last three years.	Changed the NEAP to reflect the 6 th exceedence on February 25 th 2002
	Change the NEAP to indicate that we have had more than 6 exceedences in the last 3 year but only 6 associated with high winds	Left the wording intact as we have only had 6 exceedences in the last three years, and each was due to high wind events
	Rewrite element 2 to make it more clear as to what actions the state is already taking and what steps we will take in the future to educate the public about high wind events	Rewrote Element 2 to make it more clear as to what actions the State is already taking and what steps we will take in the future to educate the public about high wind events
	Rewrite element 3 to make it clearer as to what actions the State is already taking and what steps will take in the future to minimize public exposure to high wind induced pollution. In addition add information about out listserv service for informing the public	Reworded element 3 to make it clearer as to what actions the state is already taking and what steps we will take in the future to minimize public exposure to high wind induced pollution. In addition added information about out listserv service for informing the public

	The State needs to analyze the current contributing sources identified in the NEAP, as well as additional sources that the State identifies as requested above, using EPA's BACM policies and technical guidance documents	Same as above
	The NEAP must be reviewed every five years at a minimum. The State's language could be read to allow a longer period. Please change the language to read, "The NEAP will be reviewed every five years, or sooner, if sufficient natural events..."	Made wording change requested
	Under the NEP, the NEAP should be developed in conjunction with affected stakeholders. We do not see where the State has worked with other stakeholders in its development of the NEAP.	Indicated that the State worked with stakeholders in the development of existing fugitive dust regulations that will make up the enforceable control measures of the NEAP. In addition, stakeholder provided comments during the public comment period and their comments were incorporated into the final NEAP document.

Utah

Natural Events Action Plan

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**Adopted by the Utah Air Quality Board
Xx/xx/xx**

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Natural Events Action Plan

I. EXECUTIVE SUMMARY

During the last three years the Salt Lake Valley has experienced six exceedences of the 24-hour National Ambient Air Quality Standard (NAAQS) for Particulate Matter with a nominal aerodynamic diameter of 10 micron or less (PM10). Specifically on February 25, 2002, April 15th 2002, February 1st 2003, April 1st and 2nd 2003, and May 10th 2004, PM10 monitors along the Wasatch Front in northern Utah measured exceedences of the NAAQS. Analysis of each of these events pointed to the events having been caused by high wind speeds and resultant wind blown dust.

Due to the effect that uncontrollable natural events can have on air quality and NAAQS exceedences, the US Environmental Protection Agency (EPA) issued the National Events Policy (NEP) on May 30, 1996. The NEP lays out the procedures by which to develop a Natural Events Action Plan (NEAP). The purpose of a NEAP is to protect public health in areas where the NAAQS standard may be violated due to naturally occurring events such as high winds, wild fires, and seismic/volcanic activity.

The principles of the NEP policy are as follows:

1. Federal, State, and local air quality agencies must protect public health;
2. The public must be informed whenever air quality is unhealthy;
3. All valid ambient air quality data should be submitted to the EPA Aerometric Information Retrieval System (AIRS) and made available for public access;
4. Reasonable measures must be taken to safeguard public health regardless of the source of PM10 emissions; and,
5. Emission controls should be applied to sources that contribute to exceedences of the PM10 NAAQS when those controls will result in fewer violations of the standards.

In response to Salt Lake City's PM10 NAAQS exceedences, the Utah Division of Air Quality has developed the following NEAP for the Salt Lake City area.

The plan includes analysis and documentation of the exceedences that are attributable to uncontrollable natural events. Additionally, the NEAP provides a plan of action for the protection of public health during future natural PM10 events, including preemptive public education as well as public warnings during the events. Finally the plan contains current and future actions known as Best Available Control Measures (BACM) that are currently in place or that can be developed in the future to mitigate anthropogenic sources of PM10 during uncontrollable natural events.

II. INTRODUCTION

Salt Lake City is the capitol of Utah and largest city in the State. The Salt Lake Metropolitan Area is located between the eastern and southern edges of the Great Salt Lake and the front range of the Wasatch Mountains in north-central Utah (see map on page 4). Approximately 1.5 million people live along the Wasatch Front in the metropolitan area that stretches from Ogden on the north to Provo on the south. Once you venture outside the immediate Salt Lake Valley, northern Utah is a mix of high elevation mountains and valley to the east and desert terrain to the west.

The climate throughout the year is similar to other arid high elevation valleys throughout the Intermountain West. The winters (Dec – Feb) are cold and feature enhanced precipitation while summer (June – Aug) conditions feature sustained high temperatures and arid conditions. Spring (Mar – May) and fall (Sept – Nov) tend to experience more storm systems moving through the area. These storms are often accompanied by strong surface frontal boundaries that usher strong surface winds into the area. Annual precipitation for Salt Lake City International Airport is approximately 6.5 inches. However, the last 6 years have been considered drought conditions throughout much of the Intermountain West, Utah included. The combination of this extended period of drought conditions combined with the natural occurrence of strong surface winds, particularly in the spring, has resulted in an increased likelihood for natural PM10 problems for the area. In the last three years, the Salt Lake area has recorded exceedences of the 24-hr average PM10 NAAQS during five events (six days – April 1 & 2 2003 is considered one event) during spring wind events. The PM10 concentrations from these events can be found in Table 1.

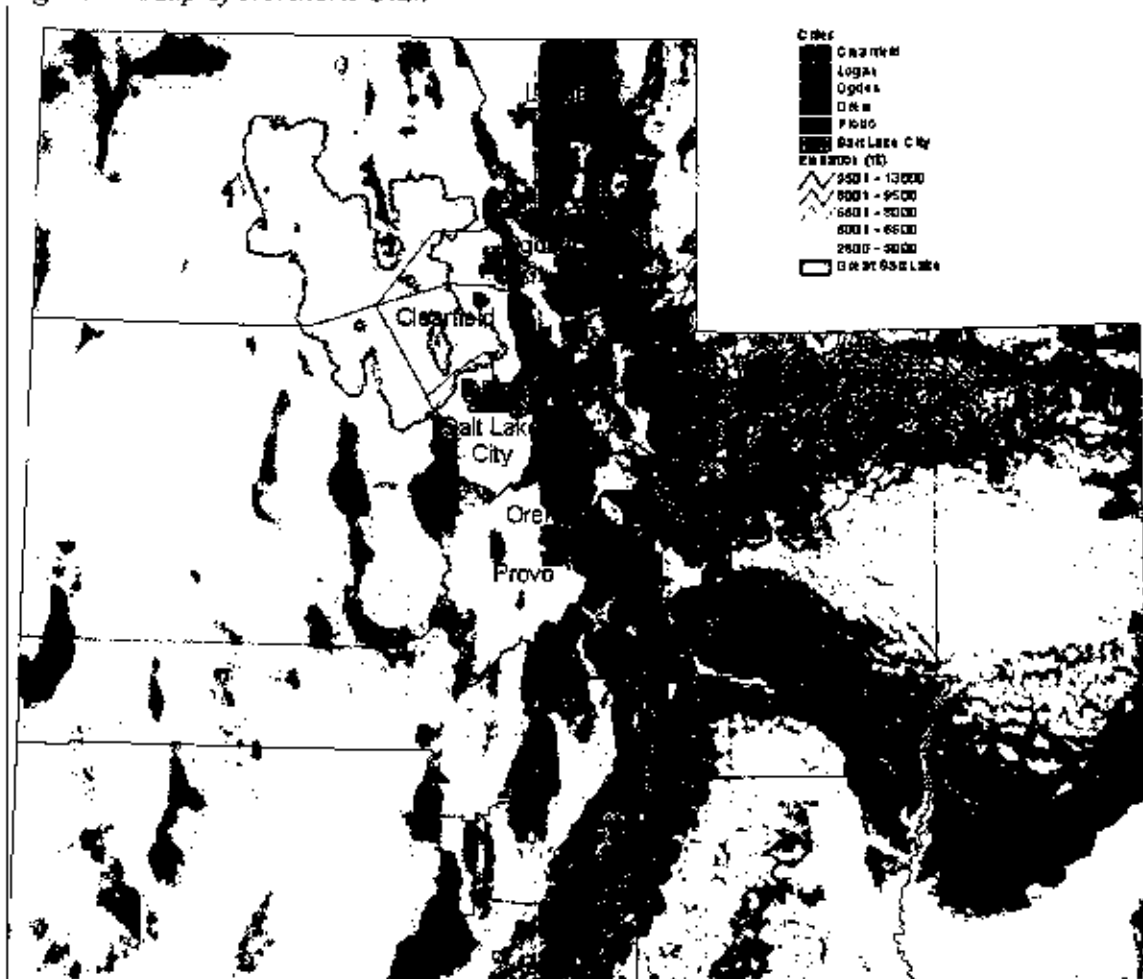
Table 1. Natural PM10 Exceedences Found Within this Document

Date	Monitor	PM10 Concentration (ug/m ³)
February 25, 2002	Magna	253
April 15, 2002	Lindon	288
February 1, 2003	Hawthorne, North Salt Lake	162, 169
April 1, 2003	North Salt Lake, Hawthorne, Lindon, Magna, Ogden2	358, 360, 117, 421, 229
April 2, 2003	North Salt Lake, Hawthorne, Ogden2	209, 120, 119
May 10, 2004	North Salt Lake, Hawthorne, Lindon, Ogden2	189, 129, 159, 136

The circumstances surrounding each of the PM10 exceedences within the Salt Lake metropolitan area have provided reason for the Division of Air Quality to believe that blowing dust associated with high wind events caused the NAAQS exceedences.

As required by the NEP, the Utah Air Monitoring Center (AMC) has flagged each of the exceedences in the AIRS system. The flags appear after the recorded values in AIRS with the descriptor code "A" for high winds. All supporting documentation of the high wind events has been submitted to EPA Region VIII except for the May 10th 2004 event, the documentation for which is included in Appendix III of this document.

Figure 1. Map of Northern Utah



In accordance with EPA guidance, the type and amount of documentation provided for each event is sufficient to demonstrate that the natural event occurred, and that it impacted a particular monitoring site in such a way as to cause the PM10 concentrations measured.

Recognizing the need to protect public health in areas where PM10 concentrations exceed the NAAQS due to natural events such as the unusually high winds, a Natural Events Action Plan has been developed for the Salt Lake metropolitan area based on the NEP guidance. This plan outlines specific procedures to be taken in response to wind blown events. In short, the purpose of the plan is to:

1. educate the public about the problem;
2. mitigate health impacts on exposed populations during future events; and
3. identify and implement Best Available Control Measures (BACM) for anthropogenic sources of windblown dust.

III. The Natural Events Policy

1. Background

In July 1986, the *Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events* and *Appendix K to 40 CFR, Part 50*, was issued by EPA to address situations where natural sources strongly influence an area's air quality. Appendix K provided, in part, that measured exceedences of the PM₁₀ NAAQS may be discounted from decisions regarding nonattainment area status if the data are shown to be influenced by uncontrollable events caused by natural sources of particulate matter.

In 1990, the Clean Air Act Amendments added section 188(f), providing EPA with discretionary statutory authority to waive either a specific attainment date or certain planning requirements for serious PM₁₀ nonattainment areas that are significantly impacted by non-anthropogenic sources.

On May 30, 1996, EPA issued the Natural Events Policy in a memorandum from Mary D. Nichols, Assistant Administrator for Air and Radiation. In this memorandum EPA announced its new policy for protecting public health when the PM₁₀ NAAQS are violated due to natural events. According to EPA's Natural Events Policy the section 188(f) waiver provision, Appendix K, and the Exceptional Events Guidance are to be considered revised by the requirements of the May 30, 1996 NEP. Under the NEP, three categories of natural events are identified as affecting the PM₁₀ NAAQS:

1. volcanic and seismic activity;
2. wildland fires; and,
3. high wind events.

Only high wind events will be addressed in this NEAP because no fire-based particulate matter events have occurred at this time. Based on EPA's natural events policy, high winds are defined as uncontrollable natural events if:

1. the dust originated from non-anthropogenic sources; or,
2. the dust originated from anthropogenic sources controlled with best available control measures (BACM).

2. Content

In order for exceedences of the NAAQS to be considered as due to a natural event, a Natural Events Action Plan must be developed to address future events. The following is a summary of the specific EPA guidance regarding development of a NEAP.

1. Analysis and documentation of the event should show a clear causal relationship between the measured exceedences and the natural event. The type and amount of documentation provided should be sufficient to demonstrate that the natural event

occurred, and that it impacted a particular monitoring site in such a way as to cause the PM10 concentrations measured.

2. Education programs should be established that are designed to educate the public about the short-term and long-term harmful effects that high concentrations of PM10 could have on their health and inform them that:
 - a. certain types of natural events affect the air quality of the area periodically,
 - b. a natural event is imminent, and
 - c. specific actions are being taken to minimize the health impacts of events.
3. Public exposure to high concentrations of PM10 should be minimized through a public notification and health advisory program. Programs to minimize public exposure should:
 - a. identify the people most at risk,
 - b. notify the at-risk population that a natural event is imminent or currently taking place,
 - c. suggest actions to be taken by the public to minimize their exposure to high concentrations of PM10, and
 - d. suggest precautions to take if exposure cannot be avoided.
4. Appropriate contributing controllable sources of PM10 should be abated or minimized. Programs to minimize PM10 emissions for high winds may include the application of BACM to any sources that have disturbed soil by anthropogenic activities. The BACM application criteria require analysis of the technological and economic feasibility of individual control measures on a case-by-case basis. The NEAP should include analyses of BACM for contributing sources.
5. If BACM is not defined, the State should identify, study, and implement practical mitigating measures as necessary. The NEAP may include commitments to conduct pilot tests of new emission reduction techniques. For example, it may be desirable to test the feasibility and effectiveness of new strategies for minimizing sources of windblown dust through pilot programs. The plan must include a timely schedule for conducting such studies and implementing measures that are technologically and economically feasible.
6. Periodically reevaluate¹:
 - a. the conditions causing violations of a PM10 NAAQS in the area,
 - b. the status of implementation of the NEAP, and
 - c. the adequacy of the actions being implemented.

¹ The State should reevaluate the NEAP for an area every 5 years at a minimum and make appropriate changes to the plan. This revision directly reflects element #6 as required under the Natural Events Policy.

7. The NEAP should be developed by the State in conjunction with the stakeholders affected by the plan.
8. The NEAP should be made available for public review and comment and may, but is not required, to be adopted as a revision to the State Implementation Plan (SIP) if current SIP rules are not revised.
9. The NEAP should be submitted to the EPA for review and comment.

The following text describes the Salt Lake NEAP and its conformance with the EPA guidance on natural events.

IV. Natural Events Action Plan

Element 1: Documentation and Analysis

The State of Utah operates a network of air quality monitors that measure a variety of criteria pollutants including particulate matter. The monitors have been sited according to EPA sitting guidelines and many are located in population centers in order to capture the effect of criteria pollutants on the public. The remaining monitors are located in areas where pollutant levels are likely to be high.

In the State of Utah, the Division of Air Quality (DAQ) within the Department of Environmental Quality is responsible for monitoring whether exceedences of the National Ambient Air Quality Standards (NAAQS) occur. It is then the responsibility of the DAQ to determine whether a measured exceedence was the result of natural causes. If the exceedence is likely to have been the result of natural causes, the DAQ will apply a notation "flag" to the data contained in EPA's Air Information Retrieval System (AIRS). The DAQ must then develop a document comprised of meteorological, air quality, and other data that demonstrates a causal relationship between the measured exceedence values and natural pollutant sources.

According to the Natural Events Policy (NEP), "the conditions that create high wind events vary from area to area with soil type, precipitation and the speed of wind gusts." Thus, states are to determine the conditions that define high wind events in an area. The process of determining what wind speeds define a high wind event in Utah is an extended process, involving the collection and analysis of a significant amount of meteorological and air quality data. Since this process will be lengthy, while the specific wind speeds for high wind events are being developed, the State of Utah will use the definition of high winds found in the *Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events*. The guidelines define high winds as: "An hourly wind speed of greater or equal to 30 mph or gusts equal to or greater than 40 mph, with no precipitation or only a trace of precipitation."

In the past three years, the State of Utah has experienced six days in which the NAAQS for PM₁₀ was exceeded. In each case, the definition of high winds was met and a document summarizing the event and providing meteorological, air quality, and other pertinent data was submitted to the EPA for review. In the case of May 10th 2004, the documentation package is being submitted in Appendix III of this document. Table 2 indicates the dates of these events and the resultant PM₁₀ values. The additional documentation about each of these exceedences can be found in the appendices of this document.

Table 2. Natural PM10 Exceedences Found Within this Document

Date	Monitor	PM10 (ug/m³) Concentration
February 25, 2002	Magna	253
April 15, 2002	Lindon	288
February 1, 2003	Hawthorne, North Salt Lake	162, 169
April 1, 2003	North Salt Lake, Hawthorne, Lindon, Magna, Ogden2	358,360,117,421,229
April 2, 2003	North Salt Lake, Hawthorne, Ogden2	209,120,119
May 10, 2004	North Salt Lake, Hawthorne, Lindon, Ogden2	189,129,159,136

Element 2: Public Education Programs

The purpose of Public Education Programs are to inform and educate the public about the effect of increased criteria pollutant values due to natural sources, most notably the potential health effects. The Public Education Programs are meant to be pre-emptive and should be enacted in an ongoing fashion before and after natural PM10 events. In order to protect public health the State has developed a series of education and outreach programs as well as interactive information sources that enable the public to understand the risk posed by each of the criteria pollutants found within the NAAQS.

The programs that the State has already developed to deal with natural wind events and the potentially hazardous effects of fugitive dust PM10 are as follows:

1. DAQ provides current PM10 air quality levels and information about the impact of fugitive dust PM10 on health including information on who is particularly sensitive to PM10. This information is transmitted to the public via a real-time website (<http://atlas.utah.gov/website/amccurrent>)
2. DAQ provides information to the public through traditional news outlets including local newspapers, television and radio, enabling stories that inform the public about the potential health and safety impacts of fugitive dust PM10.
3. During severe air quality events DAQ spokespeople routinely speak directly with local media outlets (radio, television, newspapers) to ensure that the public understands the severity and repercussions of naturally occurring fugitive dust events. In addition, DAQ spokespeople use the opportunity of the fugitive dust event to educate the public about how natural events occur and how the public can protect themselves during future events.
4. DAQ informs the public about the long and short-term effects of air pollution on their health through a dedicated website (<http://www.cleanair.utah.gov>).
5. DAQ works with area schools to advise them about current air quality conditions as well as the detrimental impacts of poor air quality. The schools will keep

children inside during air quality episodes based on Air Quality Index (AQI) forecasts.

6. DAQ works with the local American Lung Association to provide information to groups that are sensitive to poor air quality conditions.
7. DAQ developed a brochure that included the impacts and causes of air pollution, as well as steps that the public could take to minimize their exposure.

In addition to the current efforts to inform the public, in order to further safeguard the public, the DAQ will consider the development of additional public notification and education programs. The goals of the future programs would be to:

1. explain the effect that natural pollution events have on their communities,
2. explain that these natural events are eminent, and
3. explain the actions that are being taken to minimize the effects of natural events.

In order to fulfill these goals, DAQ will continue to refine programs with local business, non-profit organizations, health care professionals, media, and educational organizations to provide further information to the public. Programs that already exist and will be considered for further development are listed below:

Community Outreach:

- Community Center Events
- Pollution Advisories
- Smoking Vehicle Hotline (SMOG) (801)-944-7664
- Additional online pollution education (<http://atlas.utah.gov/website/amccurrent>)
- Advertising/PSA
- Working with local businesses

School and Youth Outreach:

- Classroom Presentations
- Teacher Training
- Air Quality Curricula

Annual Public Events:

- Earth Day Events

Element 3: Minimize Public Exposure

To minimize the exposure of high concentrations of atmospheric pollutants, the NEP requires that the public be given notice when a natural pollution event is imminent, is currently taking place, or is likely to occur. Currently, prior to naturally occurring high wind events, the Utah Air Monitoring Center (AMC) distributes a high wind advisory via a fax distribution list and recorded message on a call-in line. In addition, DAQ is actively involved in EPA's AQI and AIRNow programs. Through these systems, DAQ provides daily air quality data and forecasts to the public through a number of EPA and DAQ websites. Real-time air quality data and air-quality forecasts can also be found in the following locations:

<http://www.airquality.utah.gov/Odometer.htm>
<http://www.airmonitoring.utah.gov/f-current.htm>
<http://www.epa.gov/airnow>
<http://atlas.utah.gov/website/amccurrent>
<http://www.airmonitoring.utah.gov/utahmap.htm>

In addition to online information, Utah DAQ has developed the following other procedures in order to minimize public exposure:

1. DAQ works with the local American Lung Association to provide targeted information to groups that are sensitive to poor air quality conditions.
2. DAQ provides information to the public through traditional news outlets including local newspapers, television and radio, enabling stories that inform the public about the potential health and safety impacts of fugitive dust PM10.
3. DAQ provides daily air quality forecasts and data to local school districts so that the schools can reduce the exposure to children by limiting outdoor time.
4. DAQ has developed a listserve that is available on its website that allows interested people to submit their email addresses to us. This system then emails notices to the submitted email addresses whenever air quality levels along the Wasatch Front are approaching unhealthy levels.

In the future, in an effort to bolster Utah's public notification and exposure minimization system, DAQ will analyze the current public notification system and consider enhancements to it.

The focus of DAQ's review of the current system will be based on the following goals:

1. development of a better explanation of how natural pollution events occur,
2. development of better identification methods for groups sensitive to fugitive dust,
3. development of a better explanation of the impact of pollutants on health, in particular how pollutants impact sensitive groups, and

4. development of more robust precautionary measures that can be taken by the public.

The goals of this campaign to minimize public exposure to unhealthy PM10 levels may take the form of the following:

1. Continuing to work with local groups such as local hospitals and the local American Lung Association to identify sections of the population who are particularly sensitive to increased pollution concentrations and provide these groups additional information during PM10 fugitive dust events.
2. Developing a system to better identify and notify "at risk" individuals about current or upcoming natural pollution event that may negatively impact their health, by using a recorded message or expanding our listserv.
3. Continuing to work with the Salt Lake office of the National Weather Service to assess the likelihood of these events in their weather discussions and to provide warnings to the public of forecast dust events.
4. Expanding the public notification process for upcoming or current natural pollution events using:
 - a. public and private schools through the regional school districts,
 - b. media outlets,
 - c. the National Weather Service, and
 - d. local organizations.
5. Identifying further actions that will help eliminate or reduce exposure.

Element 4: Determination and Implementation of Best Available Control Measures

1. BACM Determination

According to the NEP, BACM must be implemented for anthropogenic sources contributing to NAAQS exceedences in moderate PM10 nonattainment areas. BACM for PM10 are defined in 59 F.R. 42010, August 16, 1994 as techniques that achieve the maximum degree of emissions reduction from a source as determined on a case-by-case basis considering technological and economic feasibility.

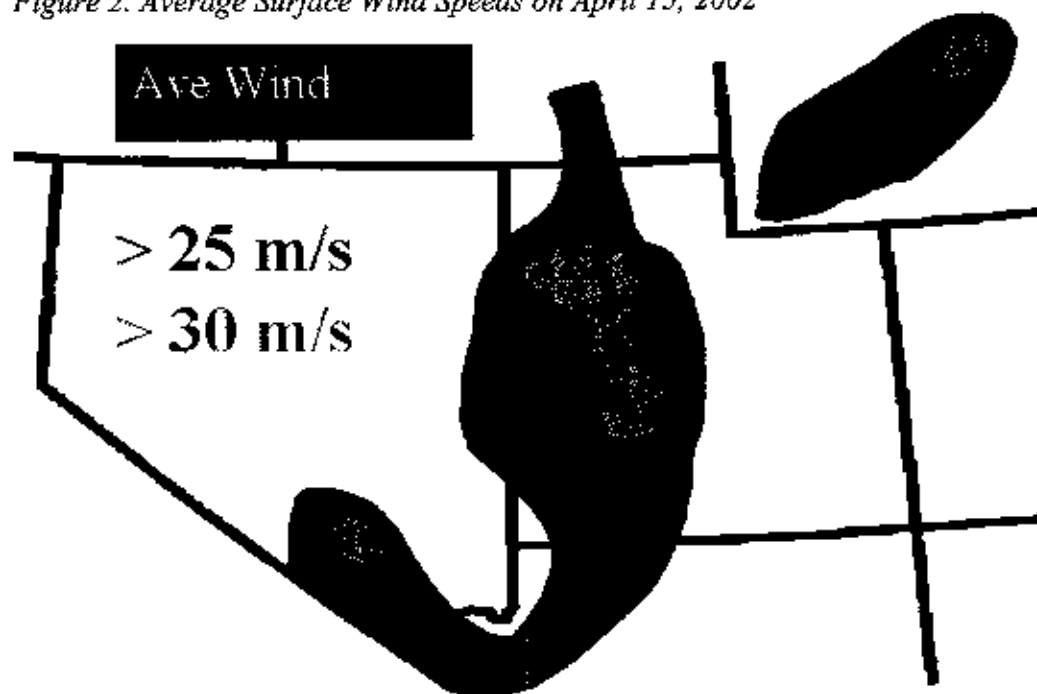
To determine which control measures would best alleviate the natural PM10 exceedences, the DAQ analyzed each of the five PM10 events (April 1 & 2, 2003 are considered one event) that occurred during the previous 3 years. Based on analyses of the five exceedence events referred to earlier in this document, criteria were developed which tended to lead to high natural PM10 concentrations. These criteria are as follows:

1. High concentrations of PM10 were caused by a mixture of anthropogenic and non-anthropogenic sources coming from outside the non-attainment area as a result of strong winds and entrained dust from the west-northwest of the non-attainment area. The entrained dust was typically the result of a surface cold front that moved into the area and transported suspended dust from west-northwest over the Salt Lake City region.
2. Spring storm systems were more likely to produce entrained crustal PM10 because of the timing of the storms between the time that the snow pack melted, releasing trapped dust, and the time when green-up and re-vegetation occurred which suppressed fugitive dust.
3. Prolonged climatic conditions of low precipitation over an extended period of time that acted to dry area soils and made them more susceptible to wind erosion.

Once the preceding conclusions were drawn about the natural causes of PM10 events in the Salt Lake Area, each of the PM10 events from the preceding three years were analyzed to determine whether local anthropogenic or non-anthropogenic sources were likely contributors to the PM10 exceedences.

During the April 15, 2002 event, strong southerly winds blew throughout Utah with 25m/s (56 mph) winds throughout most of the state as can be seen in Figure 2.

Figure 2. Average Surface Wind Speeds on April 15, 2002



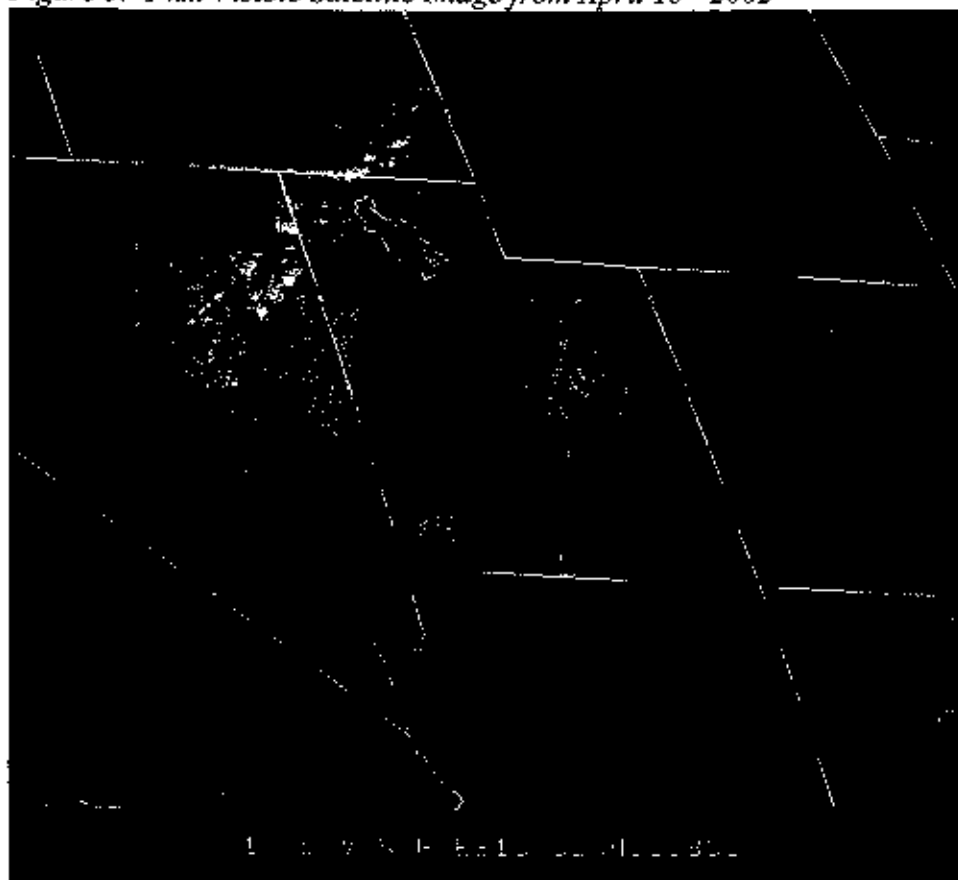
These winds were responsible for transporting significant amounts of particulate crustal material into the Wasatch Front region. Evidence of this transport is seen in the Visible Satellite image from 1830Z on April 15th 2002(Figure 3), a plume of dust can be seen

starting at the Sevier Dry Lake bed in southwestern Utah and being transported all the way into the Salt Lake area.

Although this event was apparently caused by natural regional crustal material becoming suspended in the air and transported into the Salt Lake area from the arid portions of south-central Utah by extremely strong southerly winds, an analysis was performed to determine whether local anthropogenic or non-anthropogenic sources may have contributed to the exceedence value at the Lindon Monitoring site. A map of the local sources within 1 mile and 10 kilometers circles of the Lindon monitor can be seen in Figure 4 (on page 15). Based on the predominate southerly wind direction during the event, sources between 130 and 220 degrees were analyzed for potential impact.

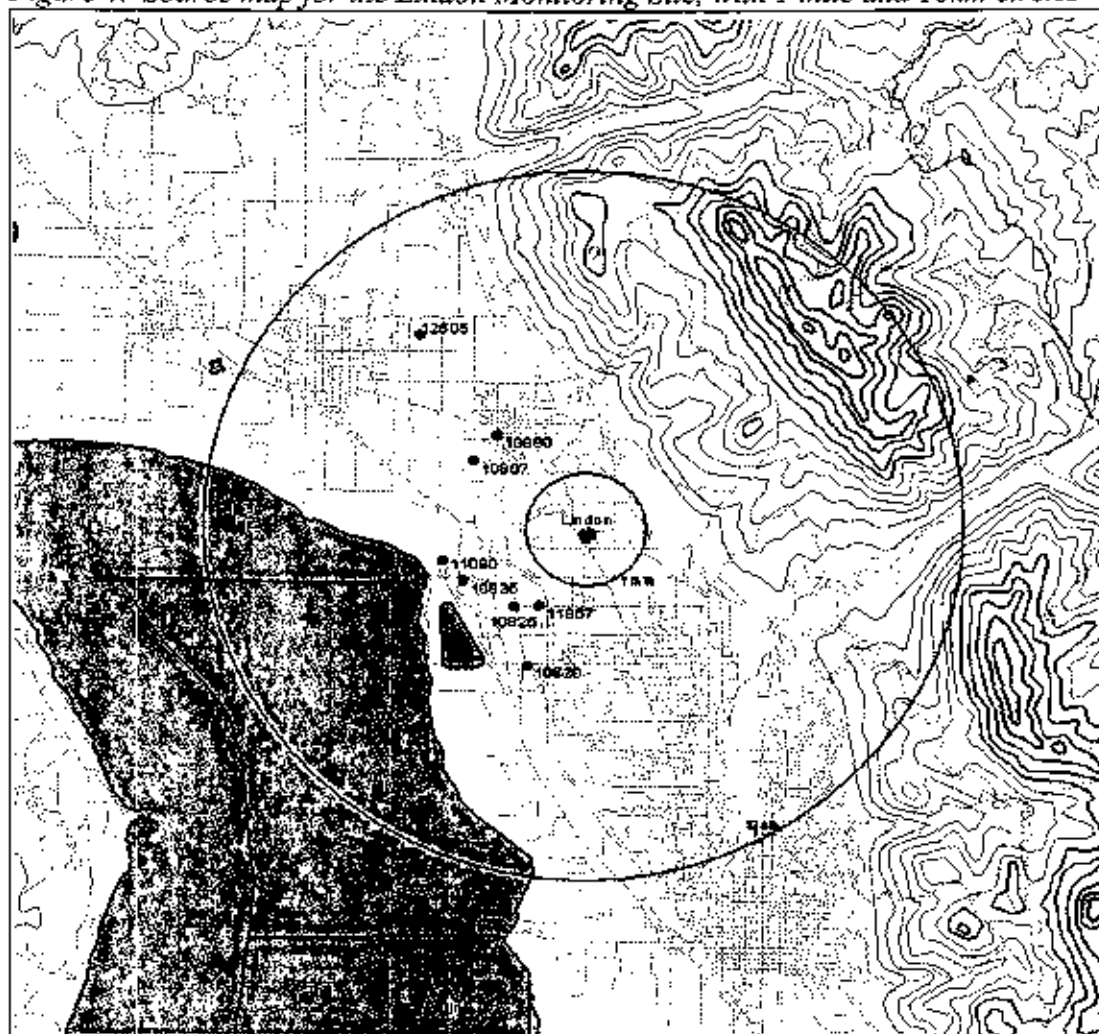
During the February 25, 2002, February 1, 2003, April 1 & 2, 2003 and May 10, 2004 events, the data seems to suggest a different cause for the high PM10 concentrations. In each of these events a strong surface low-pressure system and well-defined surface cold front was moving into the Salt Lake City area. Additionally, in each of these events the maximum concentrations occurred during the hours PM10 coincident with the cold frontal passage. As a result, the high concentrations were recorded during westerly flow in each of the events. An example of this from the May 10th 2004 event can be seen in the attached surface trajectories (Figure 5 and 6 on page 16).

Figure 3. 1 km Visible Satellite Image from April 15th 2002



The trajectories indicate the path air parcels traveled before (Figure 5) and after the passage of the cold front (Figure 6). Figure 4 depicts the parcel path that coincided with the highest measured PM10 concentration. Therefore, it stands to reason that the trajectory would indicate the direction in which the majority of the fugitive PM10 was being entrained. The trajectory (Figure 6) shows air flowing from south to north across the desert regions south of I-80 then flowing east into the north end of the Salt Lake Valley. The information from the February 25, 2002, May 10, 2004, April 1&2, 2003, and February 1, 2003 events consistently suggests that a similar post frontal trajectory produces elevated PM10 concentrations, suggesting that the high PM10 levels that were recorded in the Salt Lake area were the result of dust that was entrained by the high winds and gusts in the arid northwestern portion of Utah and was then transported within

Figure 4. Source map for the Lindon Monitoring Site, with 1 mile and 10km circles



the turbulent air mass near the cold front into the Salt Lake area. Although trajectories of each of these events hint at the reason for northwesterly winds causing higher PM10 concentrations, the process by which PM10 is transported into the Salt Lake area is actually a result of the suspension of particulate material that occurs in the turbulent frontal zone. Then as the frontal zone moves eastward, so to do the high concentrations of PM10. This can be a confusing result, as prefrontal southerly winds do increase PM10

levels somewhat. However, in each of the events in the NEAP (with the exception of April 15, 2002 which featured extremely strong southerly winds) the highest PM10 levels occurred when the cold frontal zone was near the recording monitor suggesting that the PM10 causing the exceedences is actually the crustal material that has been entrained by the eastward-moving frontal boundary.

Figure 5. Prefrontal Parcel Trajectory

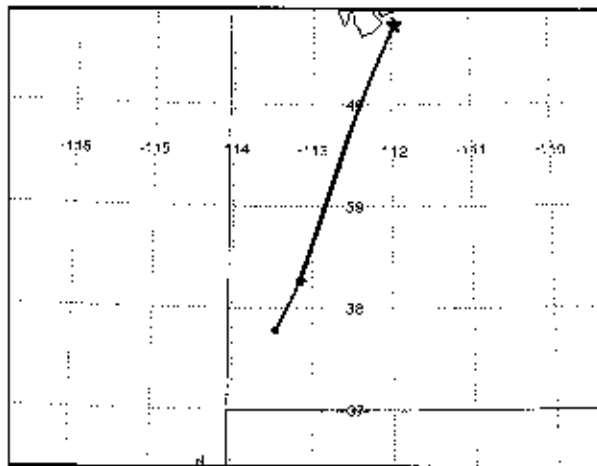
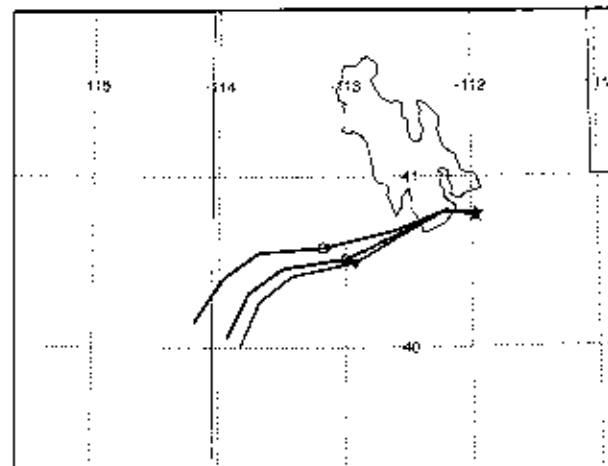
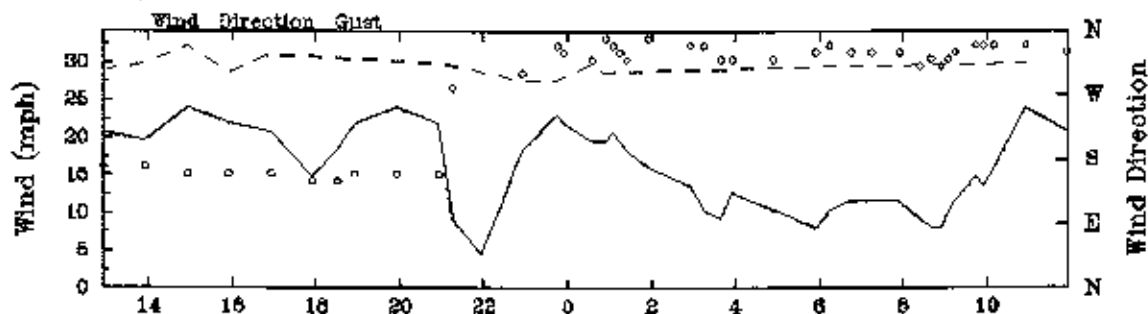


Figure 6. Postfrontal Parcel Trajectory



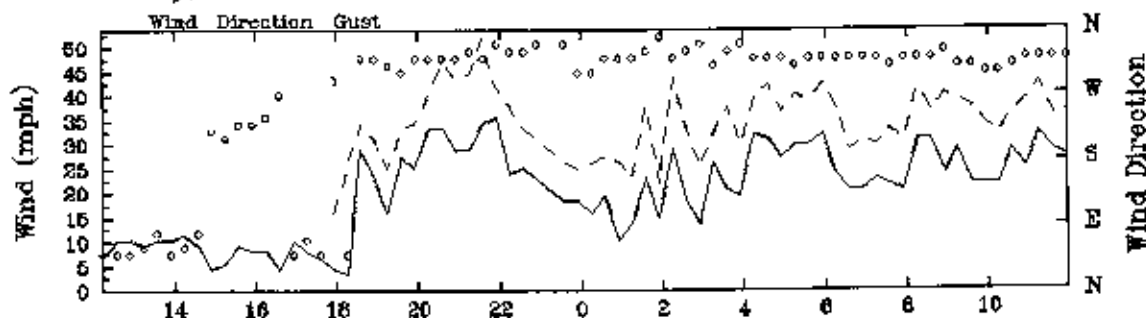
Additional support for the theory that natural dust events in the Salt Lake Valley are a result of entrained dust from the arid region west-northwest of the valley came in the analysis of the February 1st, 2003 event. During this event, winds in the western valleys sustained speeds greater than 30 mph with gusts as high as 55 mph. A graph of winds from Wendover, NV is seen below (Figure 7). Wendover, NV is just across the UT-NV border and the monitoring site at Wendover, NV is representative of the conditions in Utah's western deserts.

Figure 7. Wind Speed and Direction from 12z on May 10th through 12z on May 11th for Wendover, NV



During this event the winds in the Salt Lake Valley were lower than those experienced in the west desert valleys. Winds at Salt Lake International Airport can be seen in Figure 8 with winds averaging 17mph.

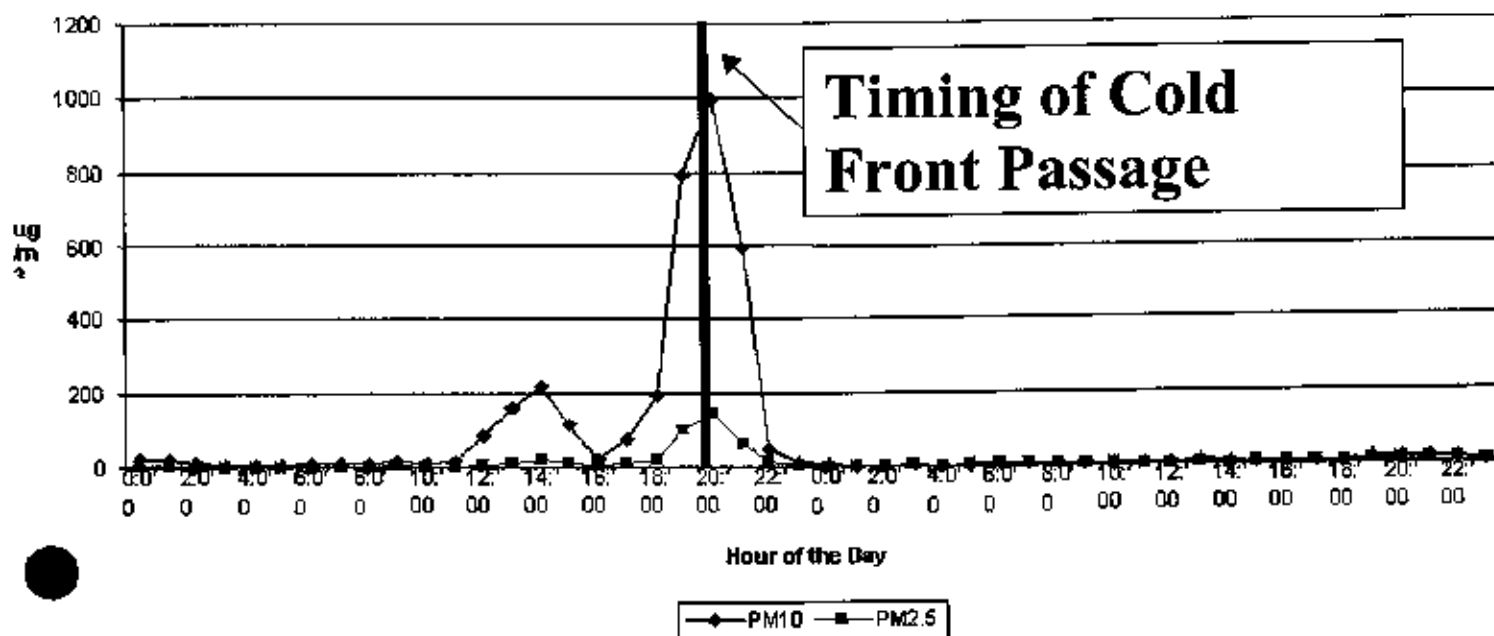
Figure 8. Wind Speed and Direction from 12z on May 10th through 12z on May 11th for Salt Lake City, UT



The difference in wind speeds between Salt Lake and the west desert caused the Salt Lake Valley to once again become a deposition zone for entrained PM₁₀ from west of the valley. Additionally, in this event, precipitation trailed the cold front, allowing the high winds to produce the dust event first. Figure 9 shows the hourly PM₁₀ and PM_{2.5} TEOM values registered by the exposed instrument at the Hawthorne monitor February 1 & 2, 2003. Note the very high values coinciding with the passage of the dry front and the introduction of the air mass from west of the valley.

Figure 9. Hourly PM₁₀ and PM_{2.5} TEOM data for the Hawthorne Monitor Located in Salt Lake City, UT from February 1st to 2nd, 2003

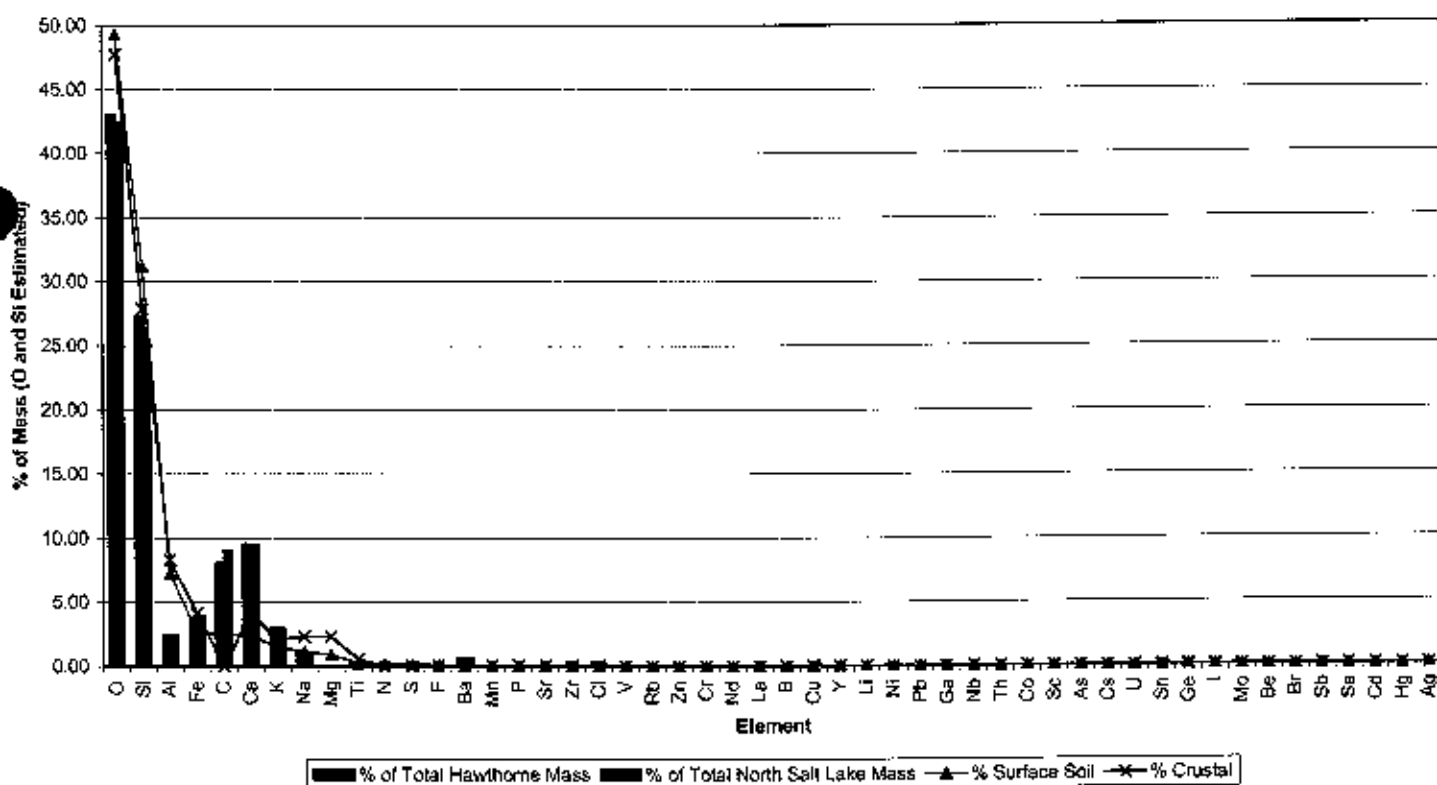
February 1 & 2, 2003 - Hourly TEOM PM₁₀ & PM_{2.5} - Hawthorne Monitor



In addition, a combined X-ray fluorescence protocol 4, Ion Chromatography, and organic/elemental carbon analysis of the FRM filters indicated that a high percentage of the mass of the material collected on the February 1, 2003, exposed filters at the Hawthorne and North Salt Lake monitors, was skewed toward the crustal elements and had very low levels of sulfates and nitrates, which is indicative of wind blown dust. Also, the valleys west of the Salt Lake Valley contain soils that are rich in minerals that contain calcium. The high peak in the Ca illustrated in Figure 10 is indicative of crustal material from the valleys west of Salt Lake, providing further evidence for the high PM10 levels within the Salt Lake Valley having been caused by fugitive dust from the arid valleys in northwestern Utah.

Figure 10. Filter Speciation for the Hawthorne and North Salt Lake Monitoring Sites from February 1st, 2003

PM10 Filter Mass Evaluation - February 1, 2003



The evidence for crustal material having been transported into the Salt Lake Valley from natural sources west and northwest of the Salt Lake Area is also supported by the data from the April 1st and 2nd 2003 and May 10th 2004 events and can be seen in Appendices II, III, and IV of this document.

In the February 25th 2002, February 1st 2003, April 1st and 2nd 2003, and May 10th 2004 events, despite strong prefrontal southerly winds, PM10 levels did not rise dramatically

until the surface cold frontal zone moved into the area of the monitoring sites, introducing suspended crustal material from sources located west-northwest of the Salt Lake area. In addition to possible anthropogenic sources that will be discussed later, the westerly/northwesterly flow direction has become an increasingly probable source over the past few years due to drought conditions and the recession of the Great Salt Lake. As a result of this lake recession, increased beach area has developed, providing a rich source of crustal PM10. The attached satellite images show the increase in beach area around the Great Salt Lake from 1998 (Figure 11) to 2002 (Figure 12). From 1998 to 2002 the reduced lake levels uncovered approximately 1000 square miles of new beach area.

Although beach area increased around the entire Great Salt Lake, the southern and southwestern portions of the lake have had particularly large increases in beach area. The attached satellite images show beach area increasing to such an extent that a land bridge developed on the south end of the lake between North Salt Lake and Antelope Island. This beach growth along the southern end of the lake is particularly influential given the westerly flow that predominated during the other PM10 events. In order to address the increasing role that the beach area around the Great Salt Lake is playing in natural PM10 events the DAQ is in the process of studying the crustal material found on the new beach area. More information on this study is found in the following section on BACM implementation.

As with the analysis of the Lindon Site during the April 15th 2002 event, once the directional nature of the PM10 fugitive dust impact was determined for the February 25th, February 1st, April 1st and 2nd, and May 10th events in the Salt Lake Valley, possible anthropogenic sources of PM10 were mapped and analyzed based on their potential impact on each of the monitor locations. The maps (Figures 13, 14, and 15) indicate the potential PM10 point sources within circles of 1 mile and 10 km of each monitor. Given the directional nature of the PM10 effect, only sources southwest through north (220-360 degrees) of the Salt Lake City monitors were considered for BACM. The southwesterly direction was included in order to be certain that no sources that were entraining dust from the southwest just prior to frontal passage would be left out of the BACM discussions.

2. BACM Implementation

Source Maps and Local Anthropogenic Sources

- I. *Lindon (Figure 4)*
- II. *Hawthorne (Figure 13)*
- III. *North Salt Lake (Figure 14)*
- IV. *Ogden2 (Figure 15)*
- V. *Magna (Figure 16)*

Each map (Figures 4, 13, 14, 15, and 16) listed above depicts all PM10 emission inventory sources that reside within 1 mile and 10 km circles of each monitor. The sources plotted on the maps include all permitted sources that produce fugitive dust emissions greater than ### tons per year and represent all significant fugitive dust sources

within the Salt Lake area. Additionally, the directions of impact (the predominate wind direction that occurred during each of the natural high wind events) are drawn on the maps.

In order to determine which PM10 sources had the greatest potential anthropogenic impact during naturally occurring high wind events, each of the maps were used to find the sources that reside within the direction of impact. All the sources that were within the direction of impact were tabulated for further analysis.

Using the list developed from our graphical analysis, each of the sources on the list were analyzed to determine which might have a significant amount of fugitive dust emissions during high wind events. The criteria used in this analysis were: specific site information (size, operations schedule, relation to monitoring sites), type of business, and past fugitive dust emissions. We determined that the sources in Table 3 have the most potential impact and are the sources for which an analysis of BACM was performed. If high wind events continue to impact the Salt Lake area, future revisions of the NEAP can look at smaller un-permitted sources for further fugitive dust emissions improvements.

Table 3. Final Source Table

Company name	Source ID	Source Name	Emissions (Tons/Year)	Pollutant
Kennecott Utah Copper Corporation	10346	Smelter & Refinery	193.75	PM10
Kennecott Utah Copper Corporation	10572	Power Pit/ Lab/ Tailings Impoundment	175.19	PM10
Butters Realty & Construction	11840	Pleasant View Pit (Crushing/Screening)	4.28	PM10
Gordon C. Orton Construction Co. Inc.	12242	Aggregate Processing	1.89	PM10
Jack B. Parsons Company	10042	McGuire Pit Crushing Operation	4.58	PM10
Jack B. Parsons Company	10972	West Ogden Operations	16.62	PM10
Jack B. Parsons Company	12323	Rocky Point Aggregate Processing Plant	0.98	PM10
Geneva Rock Products	10387	Salt Lake Concrete Batch Plant G16	17.25	PM10
Staker & Parson Companies	10408	Beck Street North Pit and Hot Plant	29.57	PM10
Staker & Parson Companies	10411	Beck Street South Hot Plant	11.40	PM10
Geneva Rock Products	10820	Orem Asphalt Plant F3 & Batch Plants	44.76	PM10
Geneva Steel	10796	Steel Manufacturing Facility	17.56	PM10

In the next section, the current fugitive dust control agreements are listed for the companies in table 3 and each current agreement or control strategy is analyzed to determine whether BACM is in place or needs to be developed. For sources that do not currently have BACM in place future commitments for BACM development are listed.

Figure 11. Composite Satellite Image of the Great Salt Lake in 1998

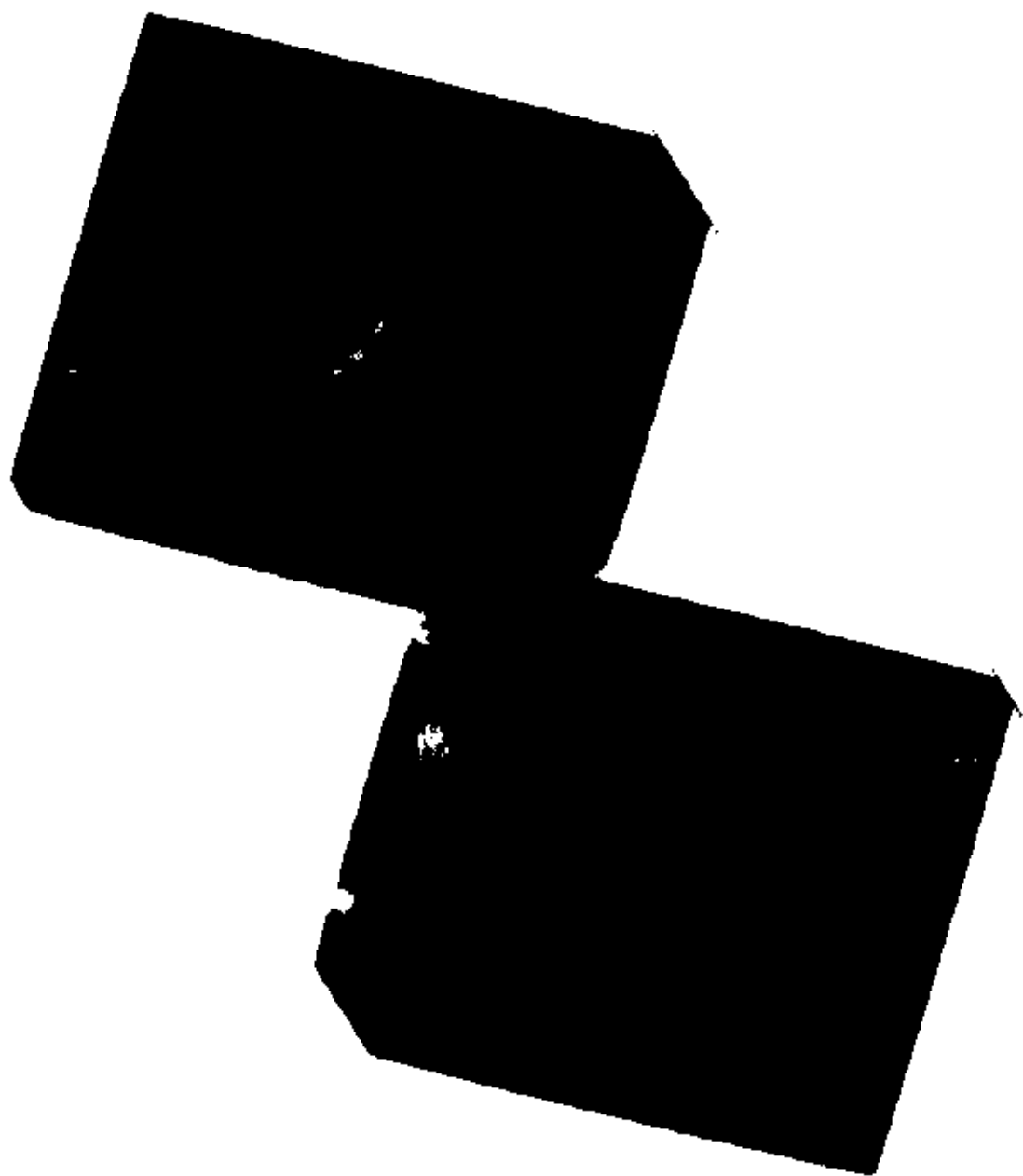


Figure 12. Composite Satellite Image of the Great Salt Lake in 2002

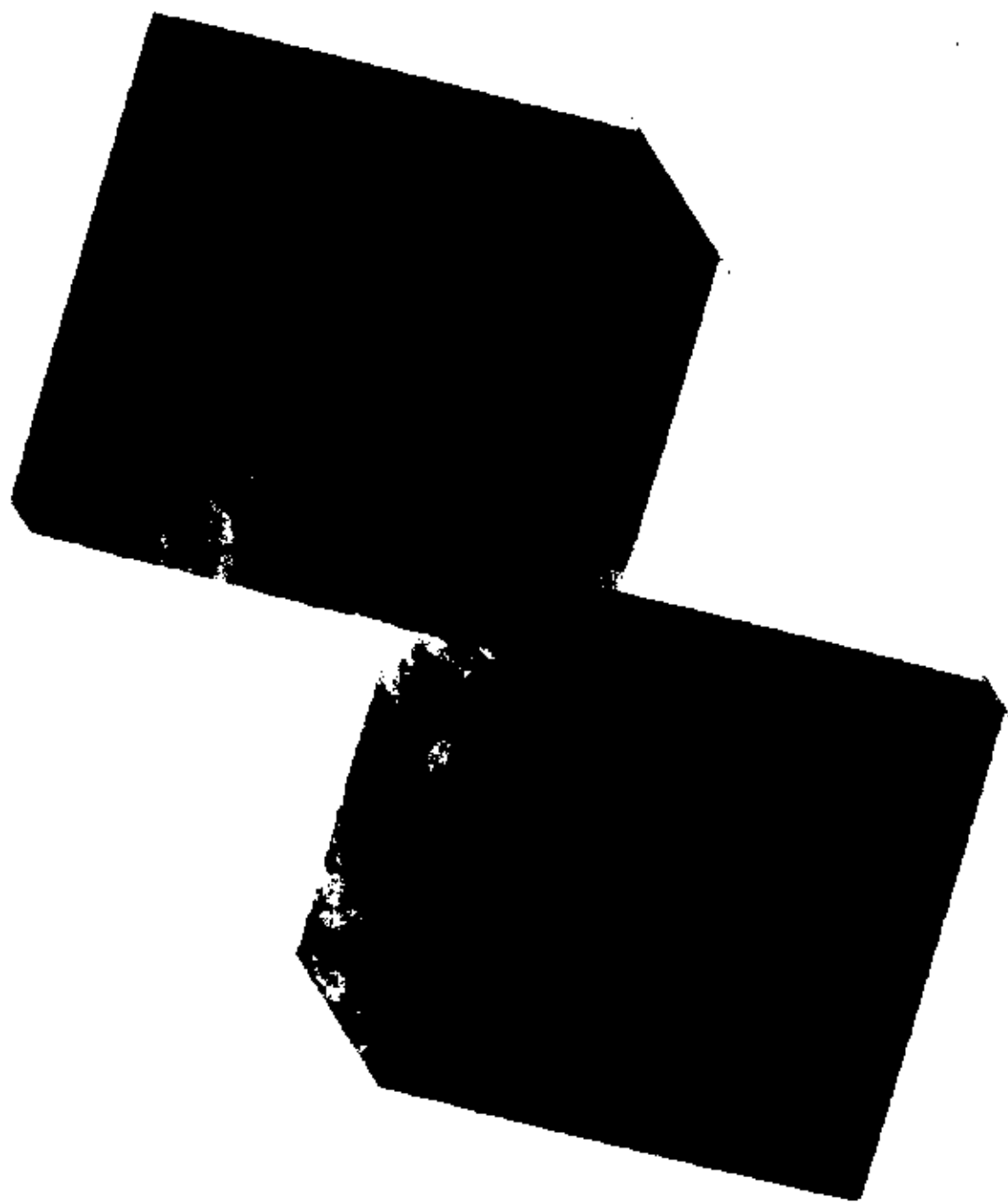


Figure 13. Source Map for the Hawthorne Monitoring Site, Indicating the 1 Mile and 10km Radius Circles Surrounding the Monitor

Hawthorne Monitor & Sites - 10 km

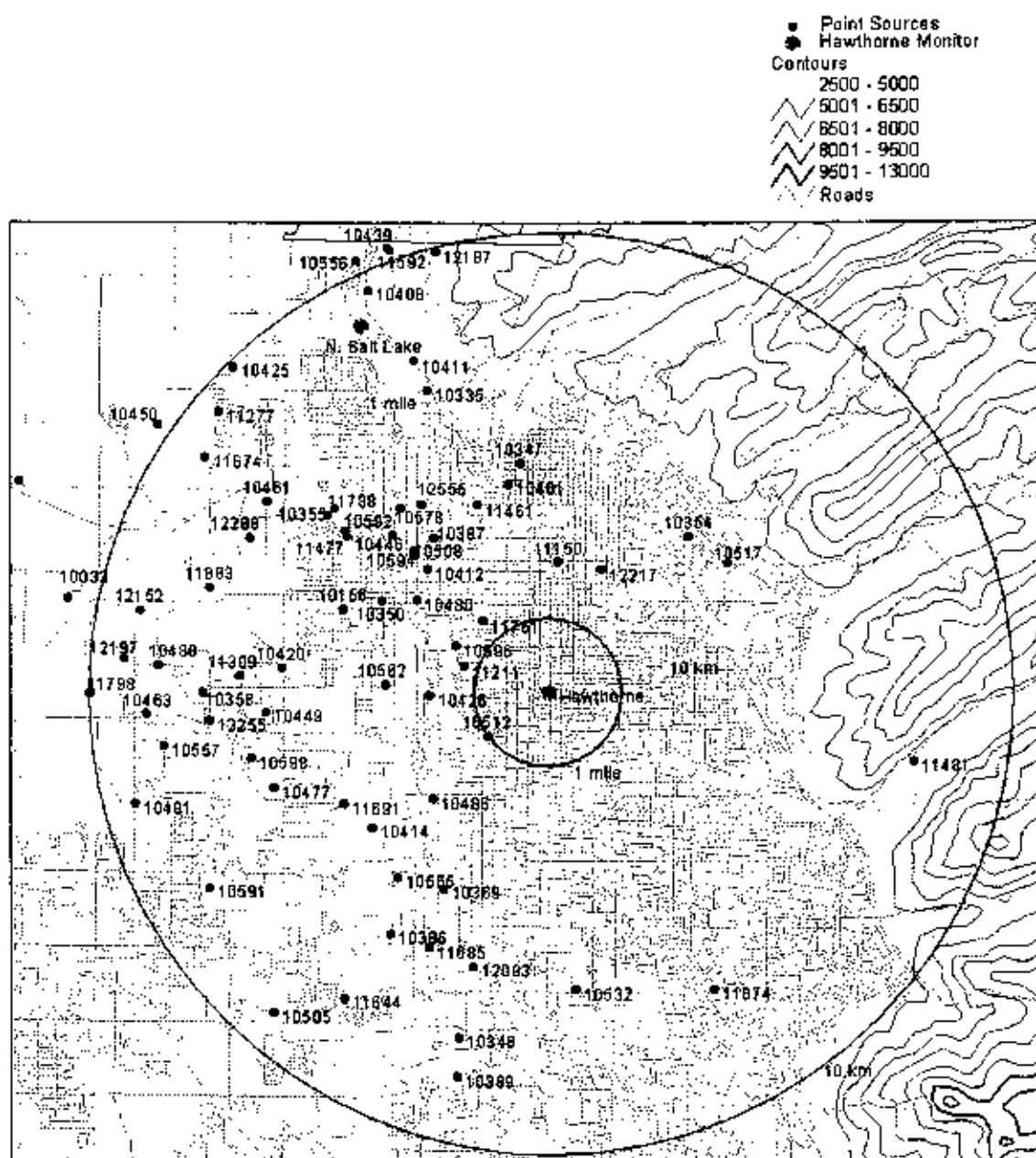


Figure 14. Source Map for the North Salt Lake Monitoring Site, Indicating the 1 Mile and 10km Radius Circles Surrounding the Monitor

North Salt Lake Monitor & Sites - 10 km

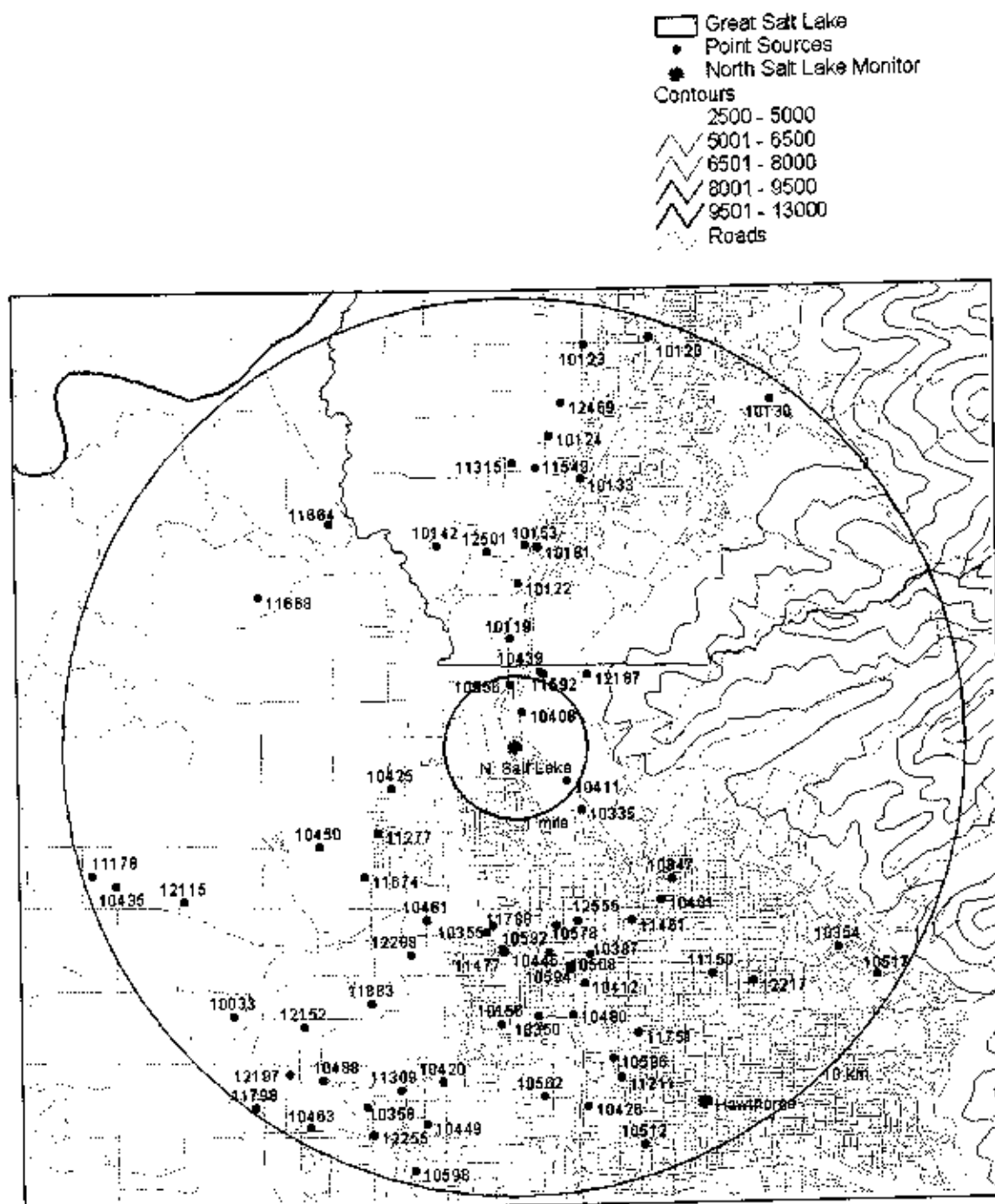


Figure 15. Source Map for the Ogden #2 Monitoring Site, Indicating the 1 Mile and 10km Radius Circles Surrounding the Monitor

Ogden #2 Monitor & Sources within 10 km

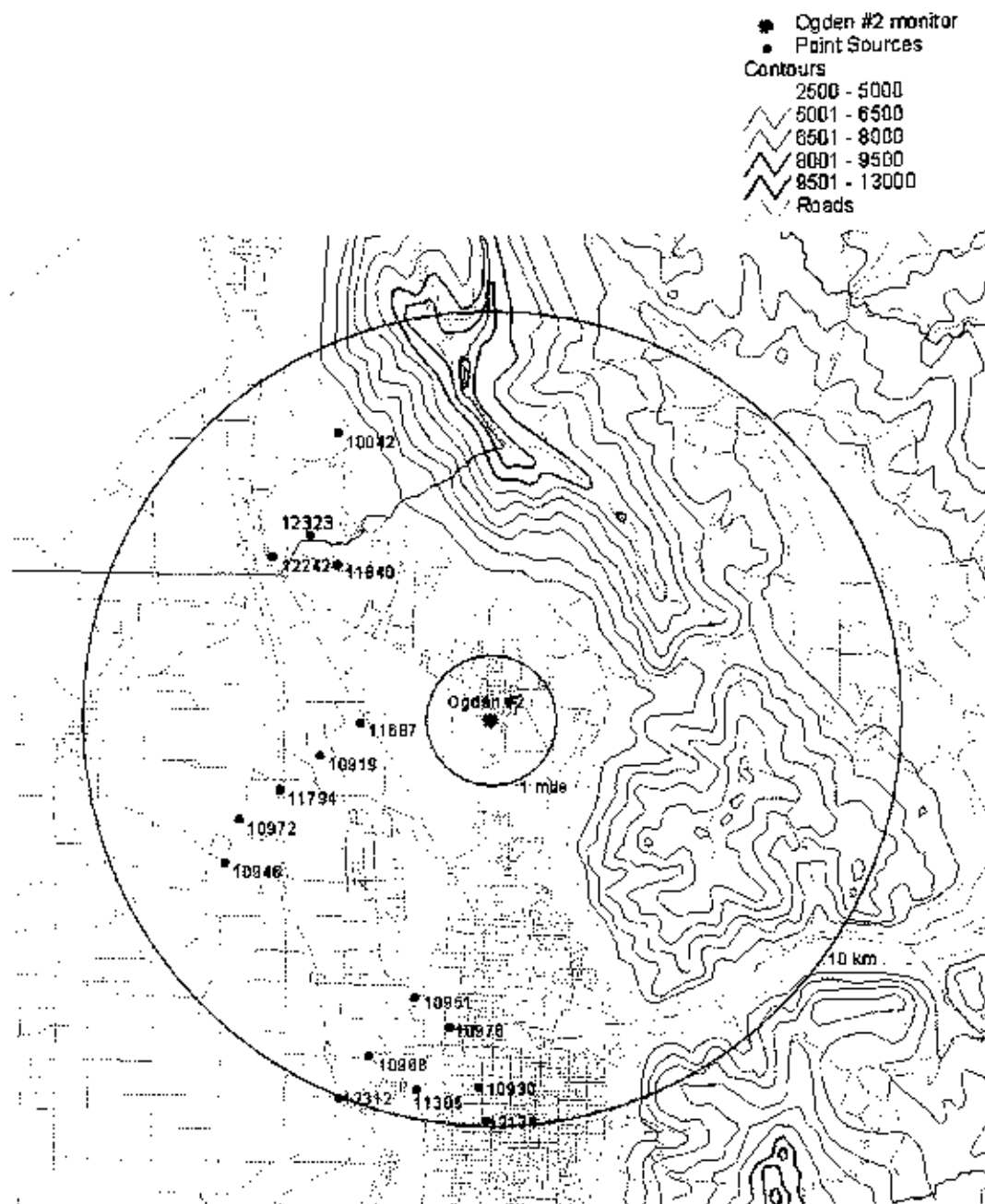
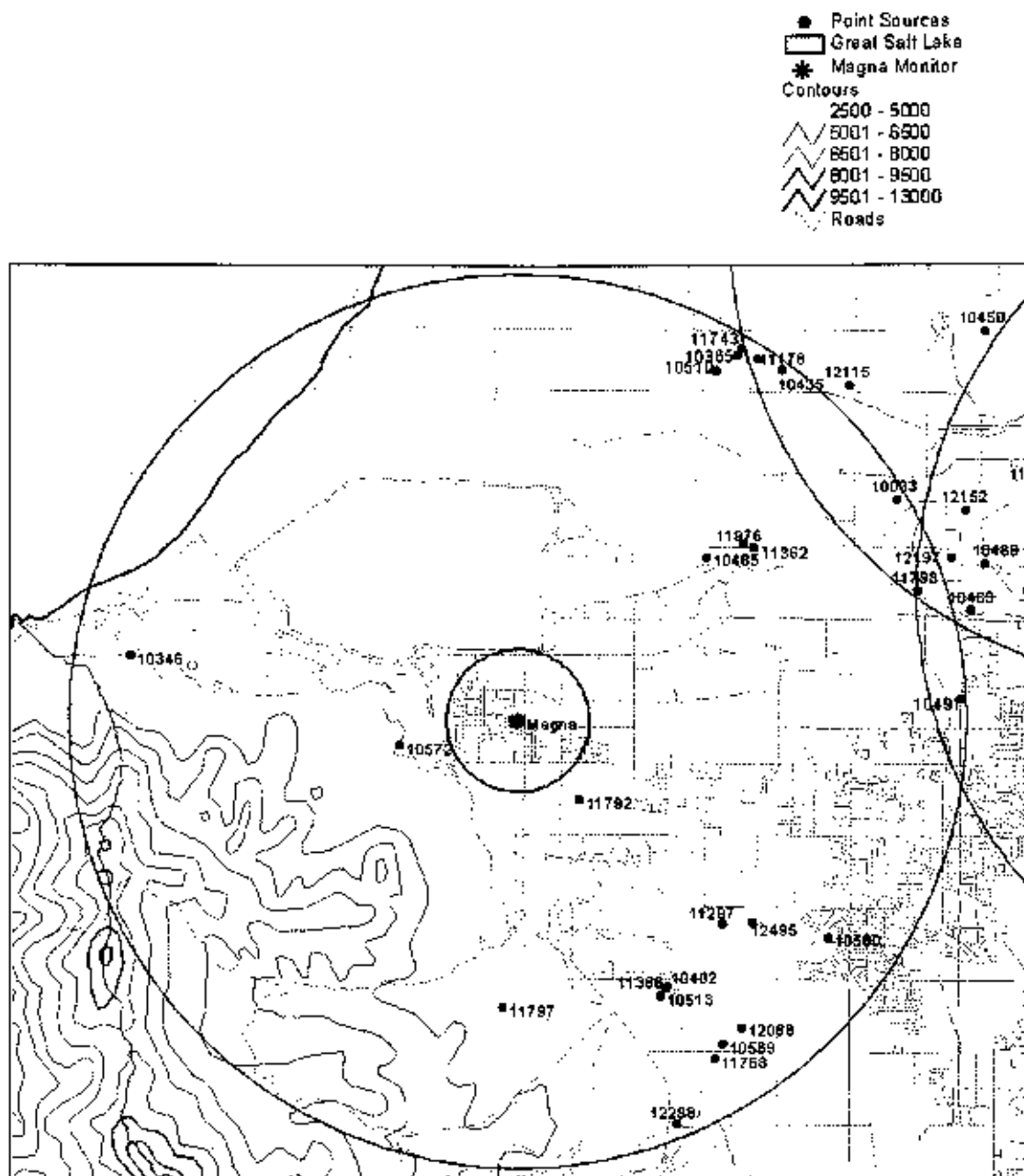


Figure 16. Source Map for the Magna Monitoring Site, Indicating the 1 Mile and 10km Radius Circles Surrounding the Monitor

Magna Monitor & Sites - 10 km



3. Current And Future Control Strategies

The following section is laid out in such a way that the future BACM program and agreements that the Utah DAQ will develop are enumerated first as well as the current and future studies to determine the impact and content of crustal PM10 from the Great Salt Lake beach areas. The future BACM and research programs are followed by the current rules and agreements that we have in place for both general and specific sources, as developed in through the Utah PM10 SIP process, Title 5 permitting, and other Utah Administrative rules.

In order to further control fugitive dust and reduce natural exceedences of the PM10 NAAQS the Utah Division of Air Quality will pursue the following plan to reduce future fugitive dust impacts.

1. On an annual basis:
 - a. The DAQ will contact each of the 13 potential fugitive dust PM10 sources in Table 3 during their annual inspection to ensure that they are conforming to the Utah PM10 SIP as well as to develop further fugitive dust control measures if necessary.
 - b. The list of sources that are potentially contributing to PM10 NAAQS exceedences (Table 3) will be evaluated on an annual basis or when further natural PM10 exceedences occur to ensure that the list incorporates all sources that may be having an impact on the natural exceedence.
2. During a high wind event:
 - a. The DAQ will monitor weather conditions with the help of the National Weather service office in Salt Lake City in order to predict high wind events.
 - b. Once a high wind event has been forecast, the DAQ will contact each potential PM10 fugitive dust source on the final source list prior to the event to ensure that they are employing BACM.
3. After a natural PM10 event:
 - a. The DAQ will request confirmation from each of the 13 potential anthropogenic PM10 sources in Table 3 that BACM was in place during the event and submit that confirmation with the documentation package to EPA.

Although future plans may help develop more nuanced BACM, Utah has had a system of control techniques for fugitive dust since 1992 when the current Utah PM10 SIP was developed. The SIP put in place control measures for all fugitive dust sources along the Wasatch Front. The SIP controls dust by implementing control measures for both specific and general PM10 fugitive dust sources. The SIP process introduced RACT and RACM for sources that existed prior to the SIP process and required BACT for new sources and modifications of existing sources. This requirement of BACT is enforced

through Utah administrative rule R307-401. Furthermore, since 1992 the state has implemented and continually updated two administrative rules, which control fugitive dust throughout the state. R307-205 and R307-309 which, taken together, apply to all significant fugitive dust sources in the state. These two rules have allowed the control of sources throughout the state that would not have been controlled by the SIP process. Among other things, these rules require each significant fugitive dust source to develop and implement a site-specific fugitive dust control plan. In effect, an approved dust plan defines BACM for a source, and provides a flexible mechanism for improving dust control over time. As a result of the 1992 PM10 SIP and the administrative rules listed above, sources within Utah have the capacity to fall under RACT, RACM, or BACT. However, the NEP requires BACM for sources that are affected by natural events. Therefore, an analysis is important to determine whether BACM is currently in place at sources that will affect the Salt Lake area during high wind events. This analysis has been performed for each of the sources listed in *table 3*. Below you will find a table of current control measures for each site as they appear in the sources current approval orders or in the 1992 PM10 SIP as well as whether these current controls meet the requirements of BACM. If the current control measures do not meet the requirements of BACM, further control strategies are listed to bring the controls up to the standard of BACM. In addition, the current agreements for the sources in *table 3* are listed in Appendix I as they appear in the 1992 Utah PM10 SIP or as updated in the current Approval Orders. The Utah administrative rules that pertain to fugitive dust (R307-205, R307-401, and R307-309) also are included in that appendix.

Table 4. Current Controls Measures for Final Sources

Company name	Current Control Measures	Do Current Controls Meet BACM	Further Strategies to Meet BACM Requirements
Kennecott Utah Copper Corporation - Brigham Copper Mine	BACT developed under approval order DAQE-178-02 The following approved (BACT) control measures are in place: <ul style="list-style-type: none"> • Speed and distance restrictions on unpaved roads based on an opacity limit of 20%; • Water or chemical sprays on all crushers, screens, and conveyer transfer points • Water or chemical sprays on all uncovered storage piles; • Water or chemical sprays on all waste dump slopes based on 20% opacity limit • Frequent water or chemical sprays on all trafficked roads and areas in the mine to control road dust; and • Wet drilling shall be performed for all blast holes. 	Yes	None based on correlation between BACT and BACM
Kennecott Utah Copper Corporation - Tailing Impoundment & Bonneville Concentrator	The Bonneville Concentrator has been permanently shutdown. BACT developed under approval order DAQE-684-99 for the Tailing Impoundments. The following approved (BACT) control measures are in place:	Yes	None based on correlation between BACT and BACM

	<ul style="list-style-type: none"> • By the end of 2004, the entire south impoundment shall be reclaimed through re-vegetation; • Magnesium Chloride is to sprayed routinely on all used unpaved roads; • Magnesium Chloride must be sprayed on all top, middle, and bottom perimeter roads by May 30 each year and reapplied as needed; • All unpaved road and unpaved work areas must be sprayed by water or approved chemical based on an opacity reading that's not to exceed 20%; • Kennecott must inspect the interior surface, unpaved roads and exterior dike area every 2 weeks or when ever winds are forecast to exceed 25mph in the next 48 hours; • The tailings impoundment will be run at maximum wetness and add no more than 50 acres to have the potential of wind erosion unless stabilized with approved dust control methods; • Exterior tailings impoundment areas shall be stabilized by vegetation or other approved method; and • If the peripheral discharge pipeline will be out of service temporary piping must be in place to insure 95% surface wetness. 		
Kennecott Utah Copper Corporation – Smelter	<p>BACT developed under approval order DAQE-836-00 for Smelter. The following approved (BACT) control measures are in place:</p> <ul style="list-style-type: none"> • All roads, parking lots, and service yards must be paved as per the approved fugitive dust plan; • Fugitive dust emissions during construction or demolition shall be controlled using BACT from Utah's fugitive dust plan; • Any open storage piles shall be sprayed with water or approved chemicals, or covered to reduce dust; and • Slag from the concentrator bin shall be controlled with water sprays at all times. 	Yes	None based on correlation between BACT and BACM
C. E. Butters Realty & Construction	<p>BACT developed under approval order DAQE-798-01 for the Orem Asphalt Plant. The following approved (BACT) control measures are in place:</p> <ul style="list-style-type: none"> • Water or chemical sprays on all crushers, screens, conveyer transfer points, and product piles; • Areas used by mobile equipment and the long-haul road must not exceed a 20% opacity limit; • The haul road must not exceed 0.6 miles and speed on the road must not exceed 10mph; 	Yes	None based on correlation between BACT and BACM

	<ul style="list-style-type: none"> Any open storage piles shall be sprayed with water or approved chemicals, or covered to reduce dust; All unpaved roads and operational areas used by mobile equipment shall be sprayed with water and/or chemically treated to control fugitive dust based on a 20% opacity limit; and Control of stripped or disturbed areas is required 24-7. 		
Gordon C. Orton Construction Co. Inc.	<p>BACT developed under approval order DAQE-808-01 for the Orem Asphalt Plant. The following approved (BACT) control measures are in place:</p> <ul style="list-style-type: none"> Water or chemical sprays on all crushers, screens, conveyer transfer points, and product piles; Areas used by mobile equipment and the long-haul road must not exceed a 20% opacity limit; The haul road must not exceed 0.5 miles and speed on the road must not exceed 15mph; Any open storage piles shall be sprayed with water or approved chemicals, or covered to reduce dust; All unpaved roads and operational areas used by mobile equipment shall be sprayed with water and/or chemically treated to control fugitive dust based on a 20% opacity limit; and Control of stripped or disturbed areas is required 24-7. 	Yes	None based on correlation between BACT and BACM
Jack B. Parsons Company – McGuire Pit	<p>BACT developed under approval order DAQE-006-02 for the Orem Asphalt Plant. The following approved (BACT) control measures are in place:</p> <ul style="list-style-type: none"> Water or chemical sprays on all crushers, screens, conveyer transfer points, and product piles; Areas used by mobile equipment and the long-haul road must not exceed a 20% opacity limit; The haul road must not exceed 0.4 miles and speed on the road must not exceed 15mph; Any open storage piles shall be sprayed with water or approved chemicals, or covered to reduce dust; and All unpaved roads and operational areas used by mobile equipment shall be sprayed with water and/or chemically treated to control fugitive dust based on a 20% opacity limit. 	Yes	None based on correlation between BACT and BACM

Jack B. Parsons Company – West Ogden Ops	<p>BACT developed under approval order DAQE-190-01 for the Orem Asphalt Plant. The following approved (BACT) control measures are in place:</p> <ul style="list-style-type: none"> • Water or chemical sprays on all crushers, screens, conveyer transfer points, and product piles; • Areas used by mobile equipment and the long-haul road must not exceed a 20% opacity limit; • The haul road must not exceed 0.6 miles and speed on the road must not exceed 15mph; • Any open storage piles shall be sprayed with water or approved chemicals, or covered to reduce dust; • All unpaved roads and operational areas used by mobile equipment shall be sprayed with water and/or chemically treated to control fugitive dust based on a 20% opacity limit; and • Control of stripped or disturbed areas is required during all operations. 	Yes	None based on correlation between BACT and BACM
Geneva Rock Products – Salt Lake Concrete Batch	<p>As developed within the 1992 PM10 SIP section IX.A.6</p> <ul style="list-style-type: none"> • Water or chemical sprays on all crushers, screens, and conveyer transfer points based on an opacity limit of 10%; • Water shall be added to all mined material before the material is moved so that the moisture content is greater than 4.0% and must be maintained at that level throughout processing; • Silt from processing must be maintained at 15% moisture content; • The batcher unit shall be enclosed in a building to control fugitive dust; • The concrete and flyash silos shall be pneumatically loaded and discharged through a baghouse; • The open disturbed area shall be not exceed 150 acres; and • The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant. 	Yes	None based on requirements of BACM and control analysis of current controls
Staker & Parson Companies – Beck St. North Pit	<p>BACT developed under approval order DAQE-569-01 for the Orem Asphalt Plant. The following approved (BACT) control measures are in place:</p> <ul style="list-style-type: none"> • Water or chemical sprays on all crushers, screens, conveyer transfer points, and product piles; • Areas used by mobile equipment shall be sprayed with water and/or chemically treated to control fugitive dust based on a 20% opacity limit; • The haul road must not exceed 2 miles and speed on the road must not exceed 	Yes	None based on correlation between BACT and BACM

	10mph; and <ul style="list-style-type: none"> The open disturbed area shall be not exceed 100 acres. 		
Staker & Parson Companies - Beck St. South Plant	BACT developed under approval order DAQE--569-01 for the Orem Asphalt Plant. The following approved (BACT) control measures are in place: <ul style="list-style-type: none"> Control via water or chemical spray shall be required at all times during operations with disturbed or stripped areas; Visible dust emissions from the haul road shall be suppressed with water or chemical spray based on an opacity limit of 20%; and All unpaved roads and unpaved work areas must be sprayed by water or approved chemical. Control is required based on a 20% opacity limit. 	Yes	None based on correlation between BACT and BACM
Geneva Rock Products - Orem Asphalt Plant	BACT developed under approval order DAQE-083-02 for the Orem Asphalt Plant. The following approved (BACT) control measures are in place: <ul style="list-style-type: none"> All unpaved roads and unpaved work areas must be sprayed by water or approved chemical. Control is required 24-7; The haul road must not exceed 1500ft. and speed on the road must not exceed 15mph; The paved haul road shall be periodically swept or sprayed clean as determined by the Executive Secretary; The storage piles shall be watered and must not exceed 10.0 acres; and Limits exist for silt content of daily average production. 	Yes	None based on correlation between BACT and BACM
Geneva Steel - Steel Manufacturing Facility	This facility Is Closed and No Longer Produces Fugitive Dust Emissions.	No	None

Current Studies

In addition to anthropogenic sources, the DAQ is seeking to determine the impact that the increased beach area around the Great Salt Lake is having on fugitive dust emissions in the Salt Lake area as well as determining the composition of the dust from the new beach areas. To determine the impact and composition of beach dust, the DAQ in conjunction with the Utah Air Monitoring Center (AMC) has developed a research study to collect and analyze PM10 filter data from newly deployed PM10 monitors adjacent to the new beach areas. The monitors have been located adjacent to various beach areas around the lake and will collect 24-hr average PM10 concentrations using the Federal Reference Method. Once a sufficient amount of PM10 data has been collected, during both normal and high wind conditions, the data will be analyzed to determine the composition of dust.

The DAQ will use this speciation data to attempt to develop a source profile for the lakebed dust in order to aid future analyses of natural wind events and clear up some of the debate between the anthropogenic and non-anthropogenic sources of fugitive dust during natural PM10 events. It is the intent of the DAQ to more accurately determine the sources of fugitive dust during high wind events through this study as well as to ascertain whether lakebed dust poses an increased health risk to the public due to its composition.

Element 5: Periodic Review

The NEAP will be reviewed every five years or sooner, if sufficient natural events occur to necessitate a review or revision of this plan.

Stakeholders

The State worked with stakeholders in the development of existing fugitive dust regulations that will make up the enforceable control measures of the NEAP. In addition, stakeholders provided comments during the public comment period and their comments were incorporated into the final NEAP document.

APPENDIX I

All Sources:

Salt Lake and Davis County

PM10 SIP Section 2.a.I

All unpaved operational areas which are used by mobile equipment shall be water sprayed and/or chemically treated to reduce fugitive dust. Control is required at all times (24 hours per day every day) for the duration of the project/operation. The application rate of water shall be a minimum of 0.25 gallons per square yard.

Section IX, Part H.2, page 29

Application shall be made at least once every two hours during all times the installation is in use unless daily rainfall exceeds .10 of an inch or the road is in a muddy condition or if it is covered with snow or if the ambient temperature falls below freezing or if the surfaces are in a moist/damp condition. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water treatment shall be kept for all periods when the installation is in operation. The records shall include the following items:

- A. Date*
- B. Number of treatments made, dilution ratio, and quantity*
- C. Rainfall received, if any, and approximate amount*
- D. Time of day treatments were made*

Records of treatment shall be made available to the Executive Secretary upon request and shall include a period of two years ending with the date of the request.

Utah County

PM10 SIP Section 1.a.H

All unpaved operational areas which are used by mobile equipment shall be water sprayed and/or chemically treated to reduce fugitive dust. Control is required at all times (24 hours per day every day) for the duration of the project/operation. The application rate of water shall be a minimum of 0.25 gallons per square yard.

Section IX, Part H.1, page 3

Application shall be made at least once every two hours during all times the installation is in use unless daily rainfall exceeds .10 of an inch or the road is in a muddy condition or if it is covered with snow or if the ambient temperature falls below freezing or if the surfaces are in a moist/damp condition. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:

- 1. Date*

2. Number of treatments made, dilution ratio, and quantity
3. Rainfall received, if any, and approximate amount
4. Time of day treatments were made

Records of treatment shall be made available to the Executive Secretary upon request and shall include a period of two years ending with the date of the request.

Administrative Rules

R307-205

R307-205-1. Applicability.

- (1) *Except where otherwise specified, R307-205 applies statewide.*
- (2) *The provisions of R307-205 shall not apply to any sources for which limitations for fugitive dust or fugitive emissions are assigned pursuant to R307-401, R307-305, or R307-307 nor shall they apply to agricultural or horticultural activities.*
- (3) *The following definitions apply throughout R307-205:*
"Material" means sand, gravel, soil, minerals or other matter which may create fugitive dust.
"Road" means any public or private road.

R307-205-2. Fugitive Emissions.

Fugitive emissions from sources in areas outside Davis, Salt Lake and Utah Counties, Ogden City and any nonattainment area for PM10 and which were constructed before April 25, 1971, shall not exceed 40% opacity. Fugitive emissions from sources constructed after April 25, 1971, shall not exceed 20% opacity.

R307-205-3. Fugitive Dust.

- (1) *Storage and Handling of Aggregate Materials. Any person owning, operating or maintaining a new or existing material storage, handling or hauling operation shall minimize fugitive dust from such an operation. Such control may include the use of enclosures, covers, stabilization or other equivalent methods or techniques as approved by the executive secretary.*
- (2) *Construction and Demolition Activities.*
 - (a) *Any person engaging in clearing or leveling of land greater than one-quarter acre in size, earthmoving, excavation, or movement of trucks or construction equipment over cleared land greater than one-quarter acre in size or access haul roads shall take steps to minimize fugitive dust from such activities. Such control may include watering and chemical stabilization of potential fugitive dust sources or other equivalent methods or techniques approved by the executive secretary.*
 - (b) *The owner or operator of any land area greater than one-quarter acre in size that has been cleared or excavated shall take measures to prevent fugitive particulate matter from becoming airborne. Such measures may include:*
 - (i) *planting vegetative cover,*
 - (ii) *providing synthetic cover,*
 - (iii) *watering,*
 - (iv) *chemical stabilization,*
 - (v) *wind breaks, or*
 - (vi) *other equivalent methods or techniques approved by the executive secretary.*
 - (c) *Any person engaging in demolition activities including razing homes, buildings, or other structures or removing paving material from roads or parking areas shall take steps to minimize fugitive dust from such activities. Such control may include watering and chemical stabilization or other equivalent methods or techniques approved by the executive secretary.*

R307-205-4. Roads.

- (1) *Any person planning to construct or operate a new unpaved road which is anticipated to have an average daily traffic volume of 150 vehicle trips per day or greater, averaged over a consecutive five day period, shall submit a notice of intent to construct or operate such a road to*

the executive secretary pursuant to R307-401. Such notice shall include proposed action to minimize fugitive dust emissions from the road.

(2) The executive secretary may require persons owning, operating or maintaining any new or existing road, or having right-of-way easement or possessory right to use the same to supply traffic count information as determined necessary to ascertain whether or not control techniques are adequate or additional controls are necessary.

(3) Any person who deposits materials which may create fugitive dust on a public or private paved road shall clean the road promptly.

R307-205-5. Mining Activities.

(1) Fugitive dust, construction activities, and roadways associated with mining activities are regulated under the provisions of R307-205-5 and not by R307-205-3 and 4.

(2) Any person who owns or operates a mining operation shall minimize fugitive dust as an integral part of site preparation, mining activities, and reclamation operations.

(3) The fugitive dust control measures to be used may include:

(a) periodic watering of unpaved roads,

(b) chemical stabilization of unpaved roads,

(c) paving of roads,

(d) prompt removal of coal, rock minerals, soil, and other dust-forming debris from roads and frequent scraping and compaction of unpaved roads to stabilize the road surface,

(e) restricting the speed of vehicles in and around the mining operation,

(f) revegetating, mulching, or otherwise stabilizing the surface of all areas adjoining roads that are a source of fugitive dust,

(g) restricting the travel of vehicles on other than established roads,

(h) enclosing, covering, watering, or otherwise treating loaded haul trucks and railroad cars, to minimize loss of material to wind and spillage,

(i) substitution of conveyor systems for haul trucks and covering of conveyor systems when conveyed loads are subject to wind erosion,

(j) minimizing the area of disturbed land,

(k) prompt revegetation of regraded lands,

(l) planting of special windbreak vegetation at critical points in the permit area,

(m) control of dust from drilling, using water sprays, hoods, dust collectors or other controls approved by the executive secretary,

(n) restricting the areas to be blasted at any one time,

(o) reducing the period of time between initially disturbing the soil and revegetating or other surface stabilization,

(p) restricting fugitive dust at spoil and coal transfer and loading points,

(q) control of dust from storage piles through use of enclosures, covers, or stabilization and other equivalent methods or techniques as approved by the executive secretary, or

(r) other techniques as determined necessary by the executive secretary.

(4) Any person owning or operating an existing mining operation in an actual area of nonattainment for particulate or an existing mining operation outside an actual area of nonattainment from which fugitive dust impacts an actual area of nonattainment for particulate shall submit plans for control of fugitive dust from such operations to the executive secretary for approval no later than September 29, 1981, 180 days after the effective date of this regulation.

R307-205-6. Tailings Piles and Ponds.

(1) Fugitive dust, construction activities, and roadways associated with tailings piles and ponds are regulated under the provisions of R307-205-6 and not by R307-205-3 and 4.

(2) Any person owning or operating an existing tailings operation where fugitive dust results from grading, excavating, depositing, or natural erosion or other causes in association with such operation shall take steps to minimize fugitive dust from such activities. Such controls may include:

- (a) watering,
- (b) chemical stabilization,
- (c) synthetic covers,
- (d) vegetative covers,
- (e) wind breaks,
- (f) minimizing the area of disturbed tailings,
- (g) restricting the speed of vehicles in and around the tailings operation, or
- (h) other equivalent methods or techniques which may be approvable by the executive secretary.

(3) Any person owning or operating an existing tailings operation in a nonattainment area for particulate or an existing mining operation outside an actual area of nonattainment from which fugitive dust impacts an actual area of nonattainment for particulate shall submit plans for control of fugitive dust from such operations to the executive secretary for approval no later than September 29, 1981, 180 days after the effective date of this regulation.

R307-309

R307-309-1. Applicability and Definitions.

(1) **Applicability.** R307-309 applies to all sources of fugitive dust and fugitive emissions located in Davis, Salt Lake and Utah Counties, Ogden City, and any nonattainment area for PM10, except as specified in (2) below. Any source located in those areas for which limitations for fugitive dust or fugitive emissions are assigned pursuant to R307-401 is subject to R307-309 on May 4, 1999, unless the source has an operating permit issued under R307-415 prior to that date. If the source has an operating permit, the source is subject to R307-309 on the date of permit renewal or permit reopening as specified in R307-415, whichever occurs first.

(2) Exemptions.

- (a) The provisions of R307-309 do not apply to agricultural or horticultural activities.
- (b) Any source which is subject to R307-305-2 through 7 or R307-307 is exempt from all provisions of R307-309 except for R307-309-4.
- (c) Any source regulated by R307-205-5 or R307-205-6 is exempt from all provisions of R307-309 except for R307-309-4.

(3) The following additional definitions apply to R307-309:

"Material" means sand, gravel, soil, minerals or other matter which may create fugitive dust.

"Road" means any public or private road.

R307-309-2. Fugitive Emissions.

Fugitive emissions from any source shall not exceed 15% opacity.

R307-309-3. General Requirements for Fugitive Dust.

(1) Opacity caused by fugitive dust shall not exceed: (a) 10% at the property boundary; and (b) 20% on site unless an approval order issued under R307-401 or a dust control plan specifies a lower level; except when the wind speed exceeds 25 miles per hour and the owner or operator is taking appropriate actions to control fugitive dust. If the source has a dust control plan approved by the executive secretary, control measures in the plan are considered appropriate. Wind speed may be measured by a hand-held anemometer or equivalent device.

(2) Any source with a dust control plan approved by the executive secretary prior to March 4, 1999, shall review and revise the plan in accordance with R307-309-4 below. The revised plan shall be submitted to the executive secretary no later than May 4, 1999.

R307-309-4. Fugitive Dust Control Plan.

(1) Any person owning or operating a new or existing source of fugitive dust, including storage, hauling or handling operations or engaging in clearing or leveling of land one-quarter acre or greater in size, earthmoving, excavation, or movement of trucks or construction equipment over cleared land one-quarter acre or greater in size or access haul roads shall submit a plan to control fugitive dust to the executive secretary no later than 30 days after the source becomes

subject to the rule. The plan shall address fugitive dust control strategies for the following operations as applicable:

- (a) Material Storage;
 - (b) Material handling and transfer;
 - (c) Material processing;
 - (d) Road ways and yard areas;
 - (e) Material loading and dumping;
 - (f) Hauling of materials;
 - (g) Drilling, blasting and pushing operations;
 - (h) Clearing and leveling;
 - (i) Earth moving and excavation;
 - (j) Exposed surfaces;
 - (k) Any other source of fugitive dust.
- (2) Strategies to control fugitive dust may include:
- (a) Wetting or watering;
 - (b) Chemical stabilization;
 - (c) Enclosing or covering operations;
 - (d) Planting vegetative cover;
 - (e) Providing synthetic cover;
 - (f) Wind breaks;
 - (g) Reducing vehicular traffic;
 - (h) Reducing vehicular speed;
 - (i) Cleaning haul trucks before leaving loading area;
 - (j) Limiting pushing operations to wet seasons;
 - (k) Paving or cleaning road ways;
 - (l) Covering loads;
 - (m) Conveyor systems;
 - (n) Boots on drop points;
 - (o) Reducing the height of drop areas;
 - (p) Using dust collectors;
 - (q) Reducing production;
 - (r) Mulching;
 - (s) Limiting the number and power of blasts;
 - (t) Limiting blasts to non-windy days and wet seasons;
 - (u) Hydro drilling;
 - (v) Wetting materials before processing;
 - (w) Using a cattle guard before entering a paved road;
 - (x) Washing haul trucks before leaving the loading site; or
 - (y) Terracing.

(3) Each source shall comply with all provisions of the fugitive dust control plan as approved by the executive secretary.

R307-309-5. Storage, Hauling and Handling of Aggregate Materials.

Any person owning, operating or maintaining a new or existing material storage, handling or hauling operation shall prevent, to the maximum extent possible, material from being deposited onto any paved road other than a designated deposit site. Any such person who deposits materials which may create fugitive dust on a public or private paved road shall clean the road promptly.

R307-309-6. Construction and Demolition Activities.

Any person engaging in clearing or leveling of land with an area of one-quarter acre or more, earthmoving, excavating, construction, demolition, or moving trucks or construction equipment over cleared land or access haul roads shall prevent, to the maximum extent possible, material from being deposited onto any paved road other than a designated deposit site. Any such person

who deposits materials which may create fugitive dust on a public or private paved road shall clean the road promptly.

R307-309-7. Roads.

(1) Any person responsible for construction or maintenance of any existing road or having right-of-way easement or possessing the right to use the same whose activities result in fugitive dust from the road shall minimize fugitive dust to the maximum extent possible. Any such person who deposits materials which may create fugitive dust on a public or private paved road shall clean the road promptly.

(2) Unpaved Roads.

(a) When unpaved roads have an average daily traffic volume of less than 150 vehicle trips per day, averaged over a consecutive 5-day period, fugitive dust shall be minimized to the maximum extent possible.

(b) When unpaved roads have an average daily traffic volume of 150 vehicle trips per day or greater, averaged over a consecutive 5 day period, control techniques shall be used which are equal to or better than 2-inch bituminous surface.

(c) Any person responsible for construction or maintenance of any new or existing unpaved road shall prevent, to the maximum extent possible, the deposit of material from the unpaved road onto any intersecting paved road during construction or maintenance. Any person who deposits materials which may create fugitive dust on a public or private paved road shall clean the road promptly.

R307-401

(Set's forth requirement of BACT for all new or modified sources)

R307-401-6. Conditions for Issuing Approval Order.

The executive secretary shall issue an approval order if it is determined through plan review that the following conditions have been met:

(1) The degree of pollution control for emissions, to include fugitive emissions and fugitive dust, is at least best available control technology except as otherwise provided in Title R307.

(2) The proposed installation will be in accord with applicable requirements of: Utah Title R307; National Standards of Performance for New Stationary Sources; National Primary and Secondary Ambient Air Quality Standards; National Emission Standards for Hazardous Air Pollutants; new source review criteria; maximum allowable increase and maximum allowable concentration requirements for Prevention of Significant Deterioration; the State Implementation Plan for the area, if the area is classified as a nonattainment or maintenance area; and new source requirements for nonattainment areas under the Federal Clean Air Act.

(3) The executive secretary shall issue an approval order under R307-405-6 for a major source or major modification which consumes more than 50% of the increments in R307-405-4 only after receiving the approval of the Board.

Specific PM₁₀ Sources:

Kennecott Bingham Copper Mine

Approval Order DAQE-178-02

Roads and Fugitive Dust

- I. Kennecott shall abide by a fugitive dust control plan acceptable to the Executive Secretary for control of all dust sources associated with the Bingham Canyon mine. The current version of the fugitive dust control plan is attached as Appendix B. This plan shall contain sufficient controls to prevent an increase in PM₁₀ emissions above those modeled for this AO. The limitations and conditions

in the fugitive dust control plan shall not be changed without prior approval by the Executive Secretary.

The haul road length or speed or any other parameters used to calculate the emissions that would change the emissions if changed shall not be increased above the limitations set in the fugitive dust control plan without prior approval in accordance with R307-401, UAC.

- 2. The facility shall abide by all applicable requirements of UAC R307-205 and R307-309 for Fugitive Emission and Fugitive Dust sources. The provisions of R307-205 and 309 shall not apply to any sources for which limitations for fugitive dust or fugitive emissions are assigned pursuant to R307-401 or R307-305 nor shall they apply to agricultural or horticultural activities.*
- 3. Control of disturbed or stripped areas is required at all times (24 hours per day every day) for the duration of the project/operation until the area is reclaimed. Records of treatment and/or reclamation shall be kept for all periods when the plant is in operation.*
- 4. Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made one-half the vehicle length or greater behind the vehicle and at approximately one-half the height of the vehicle or greater. The accumulated six readings shall be averaged for the compliance value.*
- 5. Water sprays or chemical dust suppression sprays shall be installed at the following points that are not enclosed or have baghouses to control fugitive emissions:*
 - A. All crushers*
 - B. All screens*
 - C. All conveyor transfer points*

The sprays shall operate whenever dry conditions warrant or as determined necessary by the Executive Secretary.

- 6. All uncovered storage piles shall be sprayed with water or dust suppressants to minimize generation of fugitive dusts, as dry conditions warrant or as determined necessary by the Executive Secretary. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation.*
- 7. The owner/operator shall provide to the Executive Secretary for approval a plan to keep opacity on active waste slopes at less than 20% opacity. Average opacity emissions from the active waste dump push slopes shall not exceed 20%. To insure that 20% opacity is not exceeded, the waste dump slopes shall be monitored by the owner/operator.*

If the 20% opacity limitation cannot be met on any waste dump slope, action shall be initiated to prevent excesses of 20% opacity by applying additional and/or alternate control measures, as defined in the fugitive dust control plan, as approved by the Executive Secretary.

Opacity observations shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9 with the following exceptions:

Opacity observations shall only be taken while a batch of dumped material is in motion.

One reading shall consist of an accumulation of three (3) minutes of trigger opacity observations taken over the material in motion.

8. *If the owner/operator or the Executive Secretary determines that the trigger opacity is being exceeded and existing alternate control measures have been exhausted, the owner/operator shall meet with the Executive Secretary, or the Executive Secretary's staff, to discuss additional or modified fugitive dust controls/operational practices and an implementation schedule for such within five (5) working days after verbal notification by either party.*
9. *Owner/operator shall use frequent watering or approved chemical dust suppressant to control road dust from all trafficked roads and areas in the mine. Owner/operator shall submit an annual road dust control report, in conjunction with the fugitive dust control plan, by February 1 of each calendar year, containing as a minimum the following:*
 - A. *A description of what dust control measures are planned for the coming year*
 - B. *A report of what dust control measures were actually completed during the past year*
 - C. *Specific elements of the report will include:*
 1. *A map of all trafficked areas and roads associated with the mine, indicating which areas are planned for treatments with water and/or approved chemical dust suppressant.*
 2. *A description of what chemical dust suppressant will be used if used and how it will be applied (application rate, application frequency, dilution rate, special application procedure, scarification, etc.).*
 3. *A list of equipment dedicated either full or part time to work area and road dust control (# of water trucks, water capacity, # graders, etc.).*
 4. *A quantification of how much dust suppressant (gallons, tons) was applied the previous year, and when and where it was applied.*
 5. *A quantification of how much watering was accomplished the previous year (gallons, water truck operating hours).*
10. *Wet drilling shall be performed for all blast holes.*

Kennecott Utah Copper - Bonneville Concentrator

The Bonneville Concentrator has been permanently shut down and the storage piles referenced in the PM10 SIP no longer exist and are not approved by any approval order.

Kennecott Utah Copper - Tailings Impoundment Approval Order DAQE-664-99

4. *This AO shall apply to both the North and South Tailings Impoundment.*

By the end of the year 2004, the entire surface area of the South Tailings Impoundment shall be reclaimed as discussed in the June 7, 1994, Tailings Modernization Project Fugitive Dust Abatement Program. Should saturation and/or foundation conditions for subsequent transition step back dikes prohibit complete reclamation of the South Tailings Impoundment by the end of the year 2004, Kennecott shall notify the DAQ in writing of the revised reclamation schedule within 120 days of the revised reclamation schedule. Regardless of any inconsistency between conditions of this AO and Section IX, Part H.2 and Section IX Part H.2.b.BB.b of the PM₁₀ SIP for Salt Lake County, this AO shall take precedence as provided by R307-305-2, UAC. This AO shall replace the AO, DAQE-627-95, dated July 14, 1995.

6. *The peripheral discharge system for the North Tailings Impoundment shall consist of an eastern and western half, with each half capable of delivering a minimum of 15,000 gallons per minute (gpm). The system shall be designed for simultaneous or independent operation. The peripheral discharge system shall have the capacity to deliver a minimum of 30,000 gpm.*
7. *The cycle time required for wetting all interior beach areas of the North Impoundment shall be four days. The cycle time for wetting all active interior beach areas of the South Impoundment shall be four days, except during periods of new dike construction, at which time Kennecott shall ensure that the 95% wetness criterion of Condition 13 is met with temporary piping or any other method to achieve adequate wetness if the four day cycle time is not met and conditions warrant.*
8. *If between February 15 and November 15 of each calendar year Kennecott's weather forecast is for a wind speed at more than 25 mph for more than one hour within 48 hours of issuance of the forecast, the procedures listed below shall be followed:*
- A. Alert the DAQ promptly.*
 - B. Continue surveillance and coordination.*

Roads and Fugitives

10. A. *North Tailings Impoundment*

To minimize fugitive dust emissions, magnesium chloride or other stabilization methods approved by the executive secretary, shall be applied as necessary on all routinely used, unpaved roadways as discussed in the June 7, 1994, Tailings

Modernization Project Fugitive Dust Abatement Program. A copy of the Tailings Modernization Project Fugitive Dust Abatement Program, dated June 7, 1994, is attached to this document. Supplemental stabilization to include other dust causing activities shall be by water sprays or other methods on an as-needed basis or as determined necessary and approved by the executive secretary. The owner/operator shall comply with UAC R307-205 and R307-309. These rules addresses fugitive emissions and fugitive dust requirements.

B. South Tailings Impoundment

Magnesium chloride or other stabilization methods approved by the executive secretary, shall be reapplied to the top, middle, and lower perimeter unpaved roadways that are routinely used, no later than May 30 of each calendar year and reapplied, as necessary, to minimize these sources of air pollution throughout the year.

- 1) If the roadways become a source of significant emissions, due to future dry, spring weather conditions, the application of magnesium chloride following wet, winter months shall be done prior to May 30, the date is to be negotiated between Kennecott and the executive secretary.*
 - 2) Fugitive road dust generated by: 1) dike raising construction, 2) usage of unpaved roads by traffic prior to the required reapplication, and 3) the decrease in effectiveness of magnesium chloride, shall be stabilized by water sprays or other methods on an as-needed basis or as determined necessary and be approved by the executive secretary.*
- 11. All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition. The opacity shall not exceed 20% during all times the areas are in use, unless it is below freezing. If chemical treatment other than magnesium chloride is to be used, the plan must be approved by the executive secretary. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:*
- A. Date*
 - B. Number of treatments made, dilution ratio, and quantity*
 - C. Rainfall received, if any, and approximate amount*
 - D. Time of day treatments were made*

Records of treatment shall be made available to the executive secretary upon request and shall include a period of two years ending with the date of the request.

- 12. Between February 15 and November 15 of each calendar year, Kennecott shall inspect the interior surface area, unpaved roads, and exterior dike area at least once every two weeks and daily when 48 hours before a wind event, wind gusts are forecasted to exceed 25 mph for more than one hour by Kennecott's station on top of the Tailings Impoundment.*

13. The tailings distribution system consisting of the North and South Tailing Impoundment shall be operated to maximize surface wetness. No more than 50 contiguous acres or more than five 5% of the total tailings area shall be permitted to have the potential for wind erosion, unless those areas are stabilized by vegetation, tackifier, or other methods of fugitive dust control approved by the executive secretary. Kennecott shall conduct wind erosion potential grid inspections monthly between February 15 and November 15. The grid inspections may be done concurrently with inspections required by condition #12. Wind erosion potential is the area that is not wet, frozen, vegetated, crusted or treated and has the potential for wind erosion. If it is determined by Kennecott or the executive secretary, that the total surface area with the potential for wind erosion is greater than 5%, or at the request of the executive secretary, grid inspections shall be conducted once every five working days. The revised grid inspection schedule shall be immediately initiated by Kennecott and the results reported to the executive secretary within 24 hours of the inspection. The schedule shall continue to be implemented until Kennecott measures a total surface with the potential for wind erosion of less than or equal to 5%. If Kennecott or the executive secretary, determines that the percentage of wind erosion potential is exceeded, Kennecott shall meet with the executive secretary, or executive secretary's staff, to discuss additional or modified fugitive dust controls/operational practices, and an implementation schedule for such, within five working days following verbal notification by either party.
14. Exterior tailings impoundment areas determined by Kennecott or the executive secretary to be sources of excessive fugitive dust shall be stabilized through vegetation cover or other approved methods. The exterior tailings surface area of the North Impoundment shall be revegetated or stabilized so that no more than 5% of the total exterior surface area shall be subject to wind erosion.
15. Kennecott shall schedule dike raising or main embankment construction and associated peripheral pipe deactivation in an efficient manner so as to minimize fugitive dust and peripheral discharge pipeline downtime.

On the North Tailings Impoundment, as the embankment cells are filled during continual raising of the embankment, dust shall be controlled by the inherent high water content of the hydraulically placed cyclone underflow. Portions of the embankment that are not under active construction shall be kept wet by applying tackifiers or water pumped from the toe ditch. Newly formed exterior slopes shall be stabilized with tackifiers as needed and shall be planted during the next appropriate planting season.

On the South Impoundment, fugitive dust generated from disturbed areas created by dike raising, shall be stabilized by water sprays or other methods approved by the executive secretary. The dike raising schedule for the southern-half of the South Tailings Impoundment between April and November 15 shall be as follows:

- A. If more than 3,000 feet of contiguous peripheral discharge pipeline may be deactivated for longer than seven working days and conditions warrant, Kennecott shall ensure that the 95% wetness criterion of

Condition 13 is met with temporary piping or any other method to achieve adequate wetness.

- B. If more than 2,500 feet of contiguous peripheral discharge pipeline may be deactivated for longer than 12 working days and conditions warrant, Kennecott shall ensure that the 95% wetness criterion of Condition 13 is met with temporary piping or any other method to achieve adequate wetness.*
- 16. Disturbed or stripped areas of the North Tailings Impoundment shall be kept sufficiently moist during the project to minimize fugitive dust. This control, or other equivalent control methods, shall remain operational during the project cycle and until the areas have been reclaimed. The control methods used shall be operational as needed 24 hours per day, 365 days per year or until the area has been reclaimed.*
- 17. On a quarterly basis, Kennecott shall summarize the following fugitive dust abatement program activities for the executive secretary.*
 - A. Documentation of the wind direction and speed data for days that winds exceeded 25 mph for a period greater than one hour during which no precipitation occurred.*
 - B. Documentation of the grid inspections of the tailings surface area, including the wind erosion potential of the tailings surface area.*
 - C. Documentation showing areas of dust suppressant application and planting during the quarter.*
 - D. Quarterly reports shall be submitted to the executive secretary within 30 days following the end of each calendar quarter.*
- 22. When it is determined by Kennecott or the executive secretary, that additional tailings dust control beyond the above should be considered or tailings Impoundment operational problems are occurring, Kennecott shall meet with the executive secretary, or executive secretary's staff, to discuss proposed fugitive dust controls and implementation schedule within five working days after verbal notification by either party.*
- 23. If a temporary or permanent shutdown that would affect the Kennecott Tailings Impoundment occurs, the following actions shall be taken:*
 - A. Kennecott shall submit an interim dust control plan to the executive secretary, within 30 days of Kennecott's announcement of a temporary shutdown that is expected to last longer than one week. Depending on the duration of the shutdown and the time of year in which the temporary shutdown occurs, interim dust control measures shall include flowing water through the peripheral discharge system, application of tackifiers, use of sprinklers, vegetating, or other controls as new technology becomes available.*

- B. *Kennecott shall follow the dust control procedures for transition off the existing Tailings Impoundment and reclamation of the North Impoundment as proposed in the Tailings Modernization Project Fugitive Dust Abatement Program, June 7, 1994, or a modified plan approved by the executive secretary.*

**Kennecott Smelter
Approval Order DEQE-836-00**

11. *All roads, parking lots, and service yards directly servicing the approved constructed installations listed in Condition #6 shall be paved. Owner/operator shall carry out the Fugitive Dust Control Plan submitted to the Executive Secretary on October 4, 1999, unless and until the owner/operator receives approval from him/her of a different Fugitive Dust Control Plan. The plan shall include a description of dust control practices for paved/unpaved operating areas and paved/unpaved roads located within Kessler Canyon south of State Highway 201.*
12. *Fugitive dust emissions during construction or demolition shall be controlled in accordance with R307-205 and R307-309, UAC.*
13. *The sulfur content of any diesel fuel oil used in the operation shall not exceed 0.05% by weight as determined by ASTM Method D-4294-89 or approved equivalent. The sulfur content shall be tested if directed by the Executive Secretary.*
14. *Any open storage piles shall be watered, covered, or chemically treated to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary.*

Emissions from the slag concentrator bin shall be controlled with water sprays at all times. The degree of control is a minimum of that required to meet the opacity limitations of Condition #15P.

**Geneva Rock Products - Salt Lake Concrete Batch Plant
PM10 SIP Section IX.A.6**

Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions:

- A. *All crushers*
- B. *All screens*
- C. *All conveyor transfer points*

The sprays shall operate to the extent necessary to keep the equipment operation within the opacity limitation of 10%.

4. Water shall be added to the mined material (to be bulldozed) such that before the material is moved, its moisture content, as determined by ASTM Method D-2216 on the - 40 mesh portion of the sample, is greater than 4.0% by weight. This moisture content shall be maintained throughout subsequent crushing, screening and conveying circuits. The silt content of the product shall not exceed 15% by weight on a daily average without

prior approval in accordance with Subsection R307-1-3.1, UACR. The moisture and silt content shall be tested if directed by the Executive Secretary using the appropriate ASTM method.

5. The following production limits shall not be exceeded without prior approval in accordance with Subsection R307-1-3.1, UACR:

A. For the Asphalt Plant:

1. 285 tons/hr
2. 250,000 tons/yr

B. For the Concrete Batch Plant:

1. 100 cubic yards/hr
2. 200,000 cubic yards/yr

C. For the Aggregate Pits:

1. 900 tons/hr of crushing/screening production
2. 1,000,000 tons of mined material per year
3. 2,000 hours of operation per unit per year

Asphalt, concrete and pit production shall be determined through the use of weigh scales and recording of the weights. The records shall be kept on a daily basis. Hours of operation shall be determined by supervisor monitoring and maintaining an operations log.

6. The batcher unit on the Ross Plant shall be enclosed in a building as proposed in the notice of intent dated September 4, 1984, and the loading process from the discharge hopper into the mixer trucks shall be controlled by an adjustable boot.

7. The cement and flyash silos shall be pneumatically loaded. The displaced air from the silos generated during filling shall be passed through a baghouse. The flow rate through the baghouse shall not exceed 600 ACFM. The baghouse flow rate shall be measured at the request of the Executive Secretary. The method shall be 40 CFR 60, Appendix A, Method 2.

8. For the asphalt plant, the following operating parameters shall be maintained within the indicated ranges:

- A. Pressure drop across the venturi scrubber - 15" nominal, 13" w.g. minimum
- B. Scrubber liquid flow rate - 300 gallons per minute nominal, 275 gpm minimum 225 gpm They shall be monitored with equipment located such that an inspector can at any time safely read the output. The readings shall be accurate to within the following ranges:
 - a. Plus or minus 1.0 inch w.c.
 - b. Plus or minus 15 gpm

All instruments shall be calibrated against a primary standard at least once every 90 days. The primary standard shall be specified by the Executive Secretary.

9. Under no circumstances shall the percent by weight of recycle asphalt exceed 50%.

10. The owner/operator shall use only Number 2 fuel oil or better as fuel or other fuel that can demonstrate sulfur content of less than 0.45% (less than 0.05% after

December 1993) by weight. If any other fuel is to be used, an approval order shall be required in accordance with Subsection R307-1-3.1, UACR. The sulfur content of any fuel oil burned shall not exceed 0.45% by weight as determined by ASTM Method D-4294-89 or, as appropriate, the sulfur content of any fuel oil burned shall not exceed 0.25 pounds of sulfur per million BTU heat input as determined by ASTM Method D-4294-89. The sulfur content shall be tested if directed by the Executive Secretary. Fuel consumption shall be determined by examination of vendor sales receipts which shall be maintained for two years. These records shall be made available to the Executive Secretary upon request.

11. The open disturbed area shall not exceed 150 acres without prior approval from the Executive Secretary.

12. The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary. The total acreage of the storage piles shall not exceed 75 acres.

Geneva Rock Products – Orem Asphalt Plant
Approval Order DAQE-083-02
Roads and Fugitive Dust

15. All unpaved roads and other unpaved operational areas which are used by mobile equipment shall be water sprayed and/or chemically treated to reduce fugitive dust. Control is required at all times (24 hours per day every day) for the duration of the project/operation. The application rate of water shall be a minimum of 0.25 gallons per square yard. Application shall be made as needed during all times the installation is in use unless daily rainfall exceeds 0.10 of an inch or unless the road is in a muddy/damp/moist condition or unless it is below freezing. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:
- A. Date
 - B. Number of treatments made, dilution ratio, and quantity
 - C. Rainfall received, if any, and approximate amount
 - D. Time of day treatments were made

16. The haul road shall not exceed 1,500 feet in length and the vehicle speed along the haul road shall not exceed 15 miles per hour.

These limitations shall not be exceeded. The vehicle speed on the haul road shall be posted, at a minimum, on site at the beginning of the haul road so that it is clearly visible from the haul road.

17. The paved haul road shall be periodically swept or sprayed clean as dry conditions warrant or as determined necessary by the Executive Secretary.
18. The owner/operator shall comply with R307-309, Fugitive Emissions.

19. The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary. The total acreage of the storage piles shall not exceed 10.0 acres.

20. The silt content (minus 200 mesh as determined by ASTM-C-136) of the following products shall not exceed the following values:

Combined course and fine	
Asphalt aggregate	9.0% by weight on a daily average
Concrete sand	2.5% by weight on a daily average
Concrete aggregate	0.75% by weight on a daily average

The silt content shall be tested as directed by the Executive Secretary using the appropriate ASTM method.

Staker & Parsons Companies – Beck Street North Pit
Approval Order DAQE-569-01
Roads and Fugitive Dust

18. Staker shall abide by the fugitive dust control plan included in the Appendix attached to this AO. It shall also abide by all applicable requirements of R307-309 for fugitive emission and fugitive dust sources.

Areas used by mobile equipment shall be sprayed with water and/or chemically treated to control fugitive dust. The opacity from these areas shall not exceed 20% when the areas are in use. If chemical treatment is used, it must be approved by the Executive Secretary. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:

Date
Number of treatments made dilution ratio, and quantity Rainfall received, if any, and approximate amount
Time of day treatments were made
Records of temperature if the temperature is below freezing
Visible emissions from mobile sources

20. The haul road shall not exceed two miles and the vehicle speed along the haul road shall not exceed 10 miles per hour.

The vehicle's speed limit on haul roads shall be posted at the beginning of the haul road. The posted speed limit shall large enough to be readable by the drivers.

The disturbed area shall not exceed 100 acres. Control of disturbed or stripped areas shall be required at all times for the duration of the project/operation per R307-205.

21. *Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions:*

*All crushers
All screens
All conveyor transfer points and drop points
All product piles*

Staker & Parsons Companies – Beck Street South Plant

Approval Order DAQE-307-02

Roads and Fugitive Dust

21. *All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition. The opacity shall not exceed 20% during all times the areas are in use or unless it is below freezing. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:*

- A. Date and time of day treatments were made*
- B. Number of treatments made, dilution ratio, and quantity*
- C. Rainfall received, if any, and approximate amount*
- D. Time of day treatments were made*
- E. Records of temperature if the temperature is below freezing*

Records of treatment shall be made available to the Executive Secretary or Executive Secretary's representative upon request and the records shall include the two-year period prior to the date of the request.

22. *Control of disturbed or stripped areas shall be required at all times for the duration of the project/operation per R307-205, UAC.*
23. *Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15 second intervals over a six minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made 1/2 vehicle length or greater behind the vehicle and at approximately 1/2 the height of the vehicle or greater. The accumulated six readings shall be averaged for the compliance value.*

C. E. Butters Realty & Construction

Approval Order DAQE-798-01

Roads and Fugitive Dust

24. All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition. The opacity shall not exceed 20% during all times the areas are in use or unless it is below freezing. The records shall include the following items:

- A. Date
- B. Number of treatments made, dilution ratio, and quantity
- C. Rainfall received, if any, and approximate amount
- D. Time of day treatments were made

25. The haul road limitations shall be:

- A. 0.6 miles in length
- B. 10 miles per hour

The vehicle speed on the haul road shall be posted, at a minimum, on site at the beginning of the haul road so that it is clearly visible from the haul road.

26. Control of disturbed or stripped areas is required at all times (24 hours per day every day) for the duration of the project/operation until the area is reclaimed. Records of treatment or and/or reclamation shall be kept for all periods when the plant is in operation.
27. Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made $\frac{1}{2}$ vehicle length or greater behind the vehicle and at approximately $\frac{1}{2}$ the height of the vehicle or greater. The accumulated six readings shall be averaged for the compliance value.
28. Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions:
- A. All crushers
 - B. All screens
 - C. All conveyor drop points
29. The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary.

30. *Gordon C. Orton Construction Co., Inc shall abide by a fugitive dust control plan acceptable to the Executive Secretary for control of all dust sources associated with its operations. This plan shall contain sufficient controls to prevent an increase in PM₁₀ emissions above those estimated for this AO.*
31. *All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition unless it is below freezing. The opacity shall not exceed 20% during all times the areas are in use. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:*
- A. Date*
 - B. Number of treatments made, dilution ratio, and quantity*
 - C. Rainfall received, if any, and approximate amount*
 - D. Time of day treatments were made*
 - E. Records of temperature if the temperature is below freezing*
32. *The haul road shall not exceed 0.5 miles in length and the vehicle speed along the haul road shall not exceed 15 miles per hour.*
- The vehicle speed on the haul road shall be posted, at a minimum, on site at the beginning of the haul road so that it is clearly visible from the haul road.*
33. *Control of disturbed or stripped areas shall be required at all times for the duration of the project/operation per R307-205.*
34. *Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15 second intervals over a six minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made 1/2 vehicle length or greater behind the vehicle and at approximately 1/2 the height of the vehicle or greater. The accumulated six readings shall be averaged for the compliance value.*
35. *Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions:*
- A. All crushers*
 - B. All screens*
 - C. All conveyor transfer points*

The sprays shall operate whenever dry conditions warrant or as determined necessary by the Executive Secretary

36. *The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary.*

Jack B. Parsons Company – McGuire Pit

Approval Order DAQE-006-02

Roads and Fugitive Dust

37. *Jack B. Parsons shall implement and/or operate in accordance with a dust control plan. All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition unless it is below freezing. The opacity shall not exceed 20% during all times the areas are in use. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:*
- A. *Date*
 - B. *Number of treatments made, dilution ratio, and quantity*
 - C. *Rainfall received, if any, and approximate amount*
 - D. *Time of day treatments were made*
 - E. *Records of temperature if the temperature is below freezing*
38. *Visible emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The requirement for observations to be made at 15-second intervals over a six-minute period shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary or Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made one half the vehicle length or greater behind the vehicle and at approximately one half the height of the vehicle or greater. The accumulated six readings shall be averaged for the compliance value.*
39. *Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions:*
- A. *All crushers*
 - B. *All screens*
 - C. *All unenclosed conveyor transfer points **

** - enclosed defined as having three (3) or more sides*

The sprays shall operate when necessary, to ensure that the opacity limitations of this AO are not exceeded.

40. *The storage piles shall be watered to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary.*
41. *The speed of mobile equipment (trucks, front end loaders, etc.) shall not exceed:*

- A. 15 miles per hour
- B. 0.4 miles in length

The haul road speed shall be posted, at a minimum, on site at the beginning of the haul road so that it is clearly visible from the haul road.

Jack B. Parsons Company – West Ogden Operations
Approval Order DAQE-190-01
Roads and Fugitive Dust

- 42. *Jack B. Parsons Company's, West Haven Asphalt Plant shall abide by a fugitive dust control plan acceptable to the Executive Secretary for control of all dust sources. This plan shall contain sufficient controls to prevent an increase in PM₁₀ emissions above those modeled for this AO.*
- 43. *All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition or unless it is below freezing. The opacity shall not exceed 20% during all times the areas are in use. If chemical treatment is to be used, the plan must be approved by the Executive Secretary. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:*
 - A. Date
 - B. Number of treatments made, dilution ratio, and quantity
 - C. Rainfall received, if any, and approximate amount
 - D. Time of day treatments were made
 - E. Records of temperature if the temperature is below freezing

Records of treatment shall be made available to the Executive Secretary or Executive Secretary's representative upon request and the records shall include the two-year period prior to the date of the request.

- 44. *The haul road limitations shall be:*
 - A. 0.6 miles in length
 - B. 15 miles per hour

The haul road speed shall be posted, at a minimum, on site at the beginning of the haul road so that it is clearly visible from the haul road.

- 45. *Control of disturbed or stripped areas shall be required at all times for the duration of the project/operation per R307-205, UAC.*
- 46. *Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity.*
- 47. *The Jack B. Parsons, West Haven Asphalt Plant haul road shall be paved and shall be periodically swept or sprayed clean as dry conditions warrant or as*

determined necessary by the Executive Secretary. Records of cleaning paved roads shall be made available to the Executive Secretary or the Executive Secretary's representative upon request. The records shall include the two-year period prior to the date of the request.

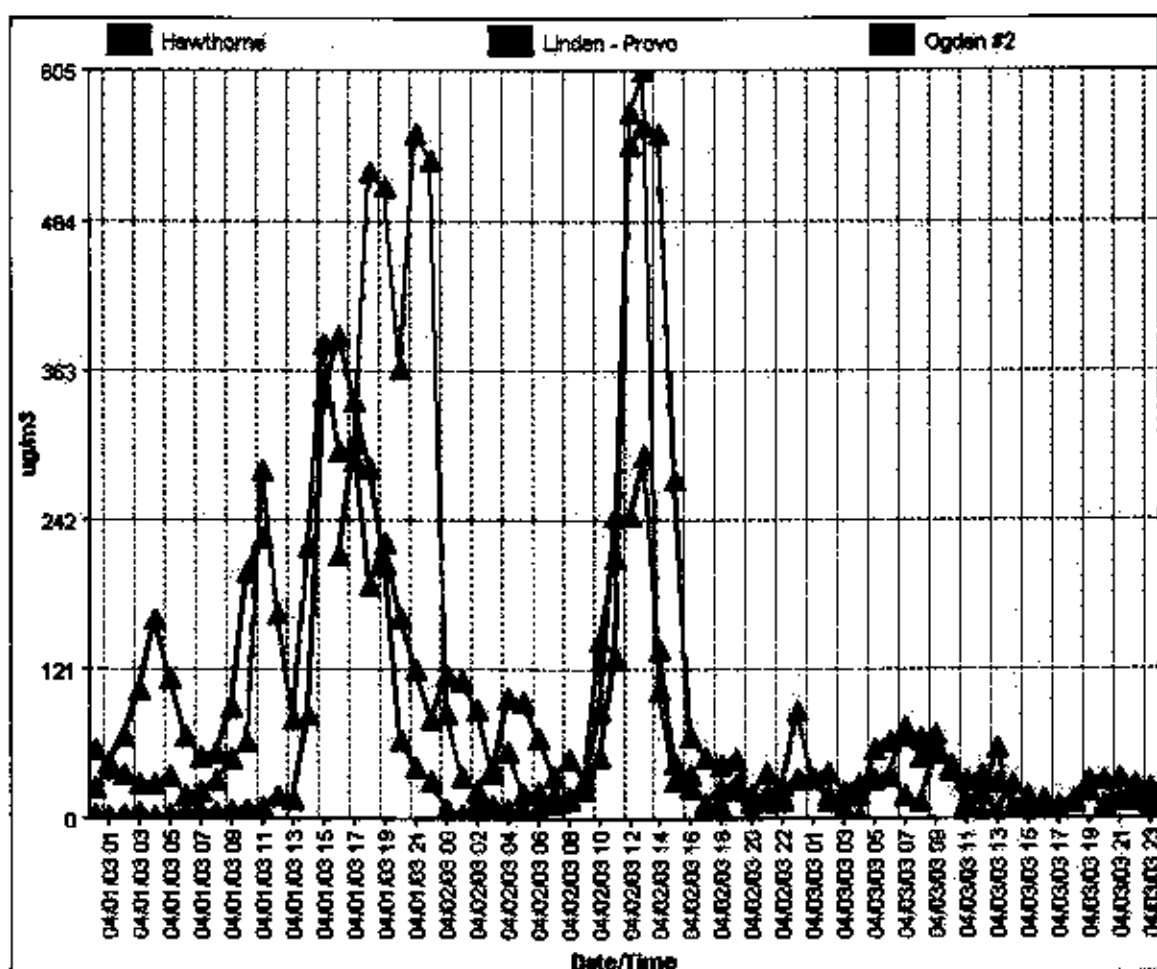
48. *Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions:*
- A. *All crushers*
 - B. *All screens*
 - C. *All conveyor transfer points*

The sprays shall operate whenever dry conditions warrant or as determined necessary by the Executive Secretary.

49. *The storage piles shall be watered to minimize generation of fugitive dusts, as dry conditions warrant or as determined necessary by the Executive Secretary.*

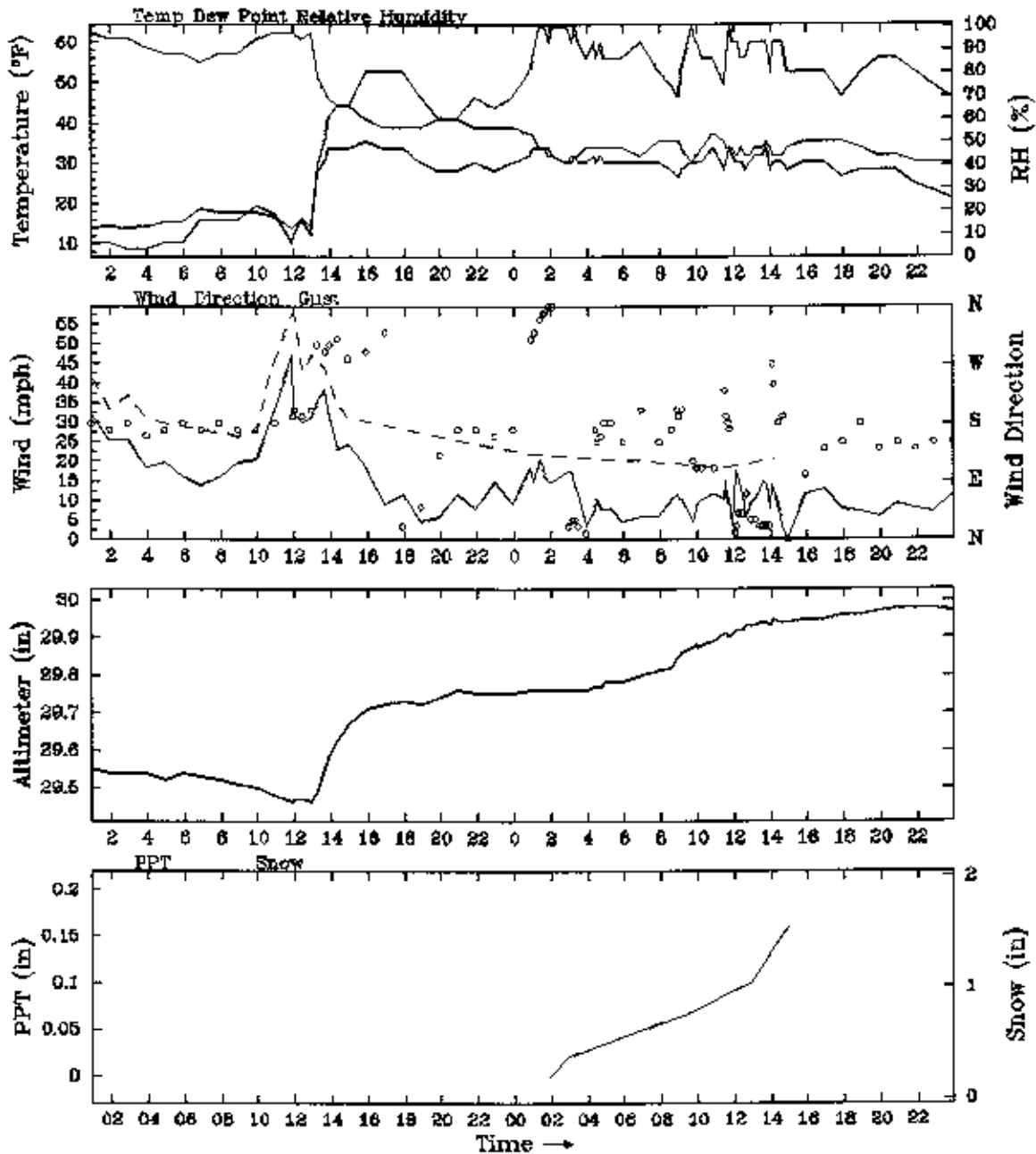
Appendix II.

Additional Meteorological Information

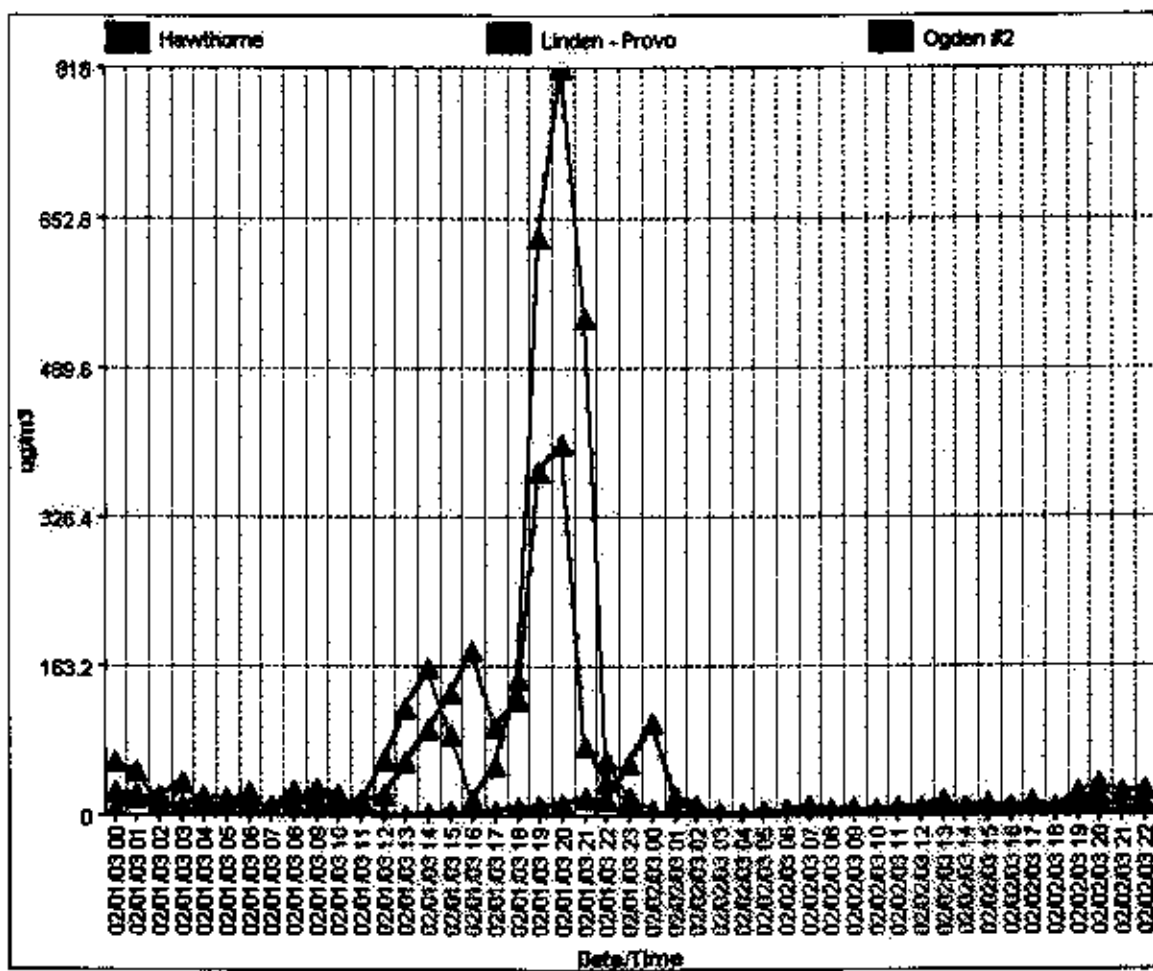


TEOM data from Hawthorne, Linden, and Ogden PM10 monitors from April 1, 2003 through April 3, 2003

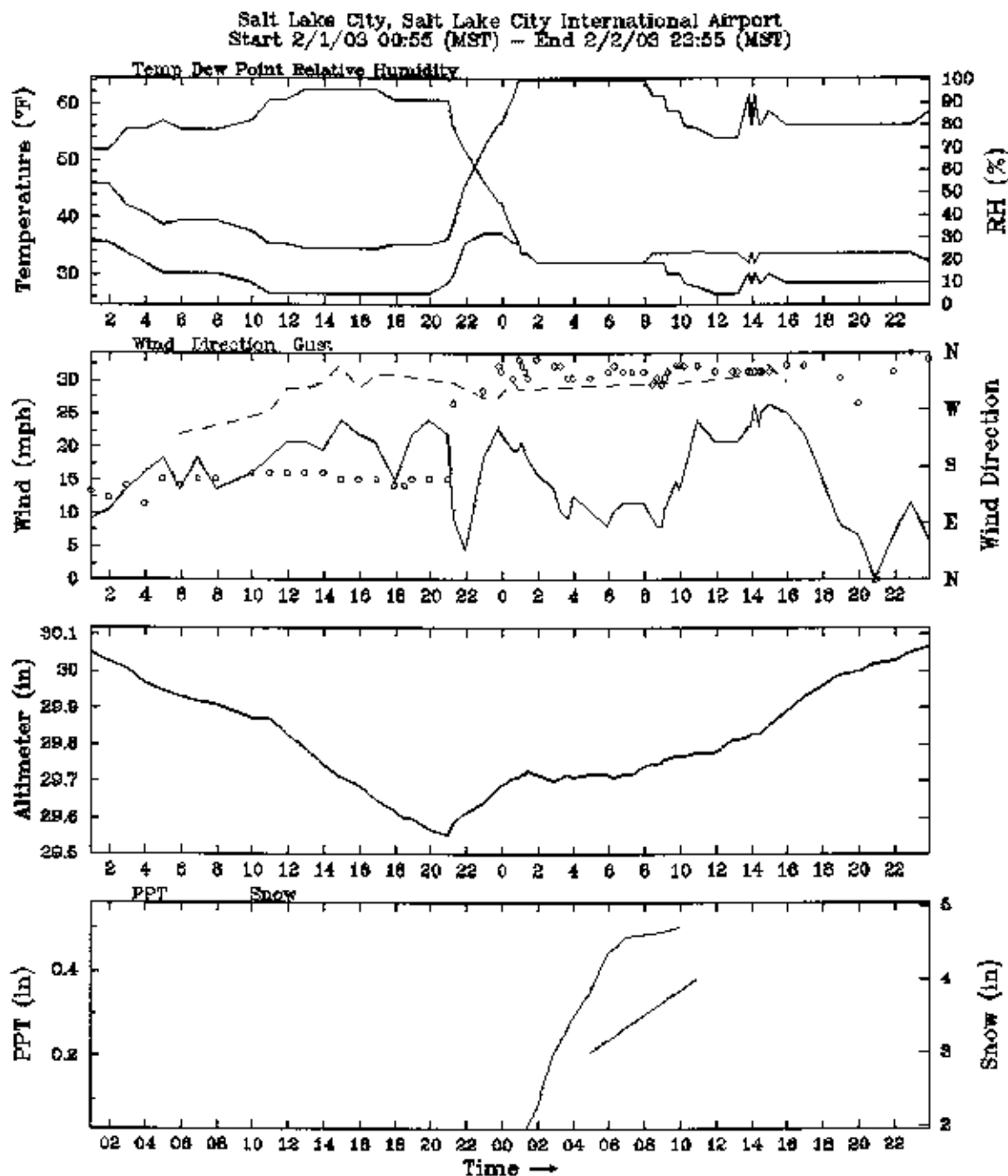
Salt Lake City, Salt Lake City International Airport
Start 4/2/03 00:55 (MST) - End 4/3/03 23:55 (MST)



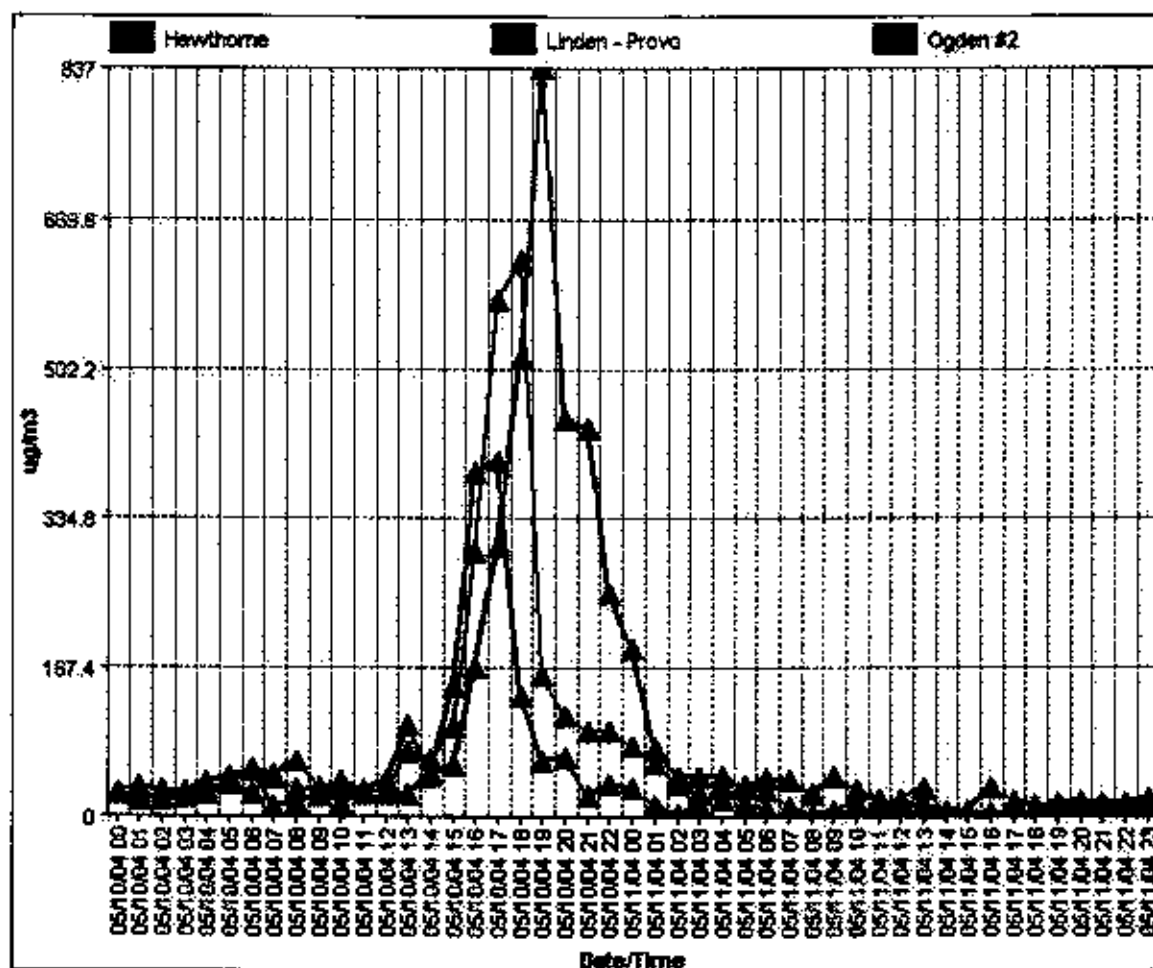
Atmospheric variables including temperature, wind speed, and direction from the Salt Lake City Airport from April 1, 2003 through April 3, 2003



TEOM data from Hawthorne, Linden, and Ogden PM10 monitors from February 1, 2003 through April 2, 2003

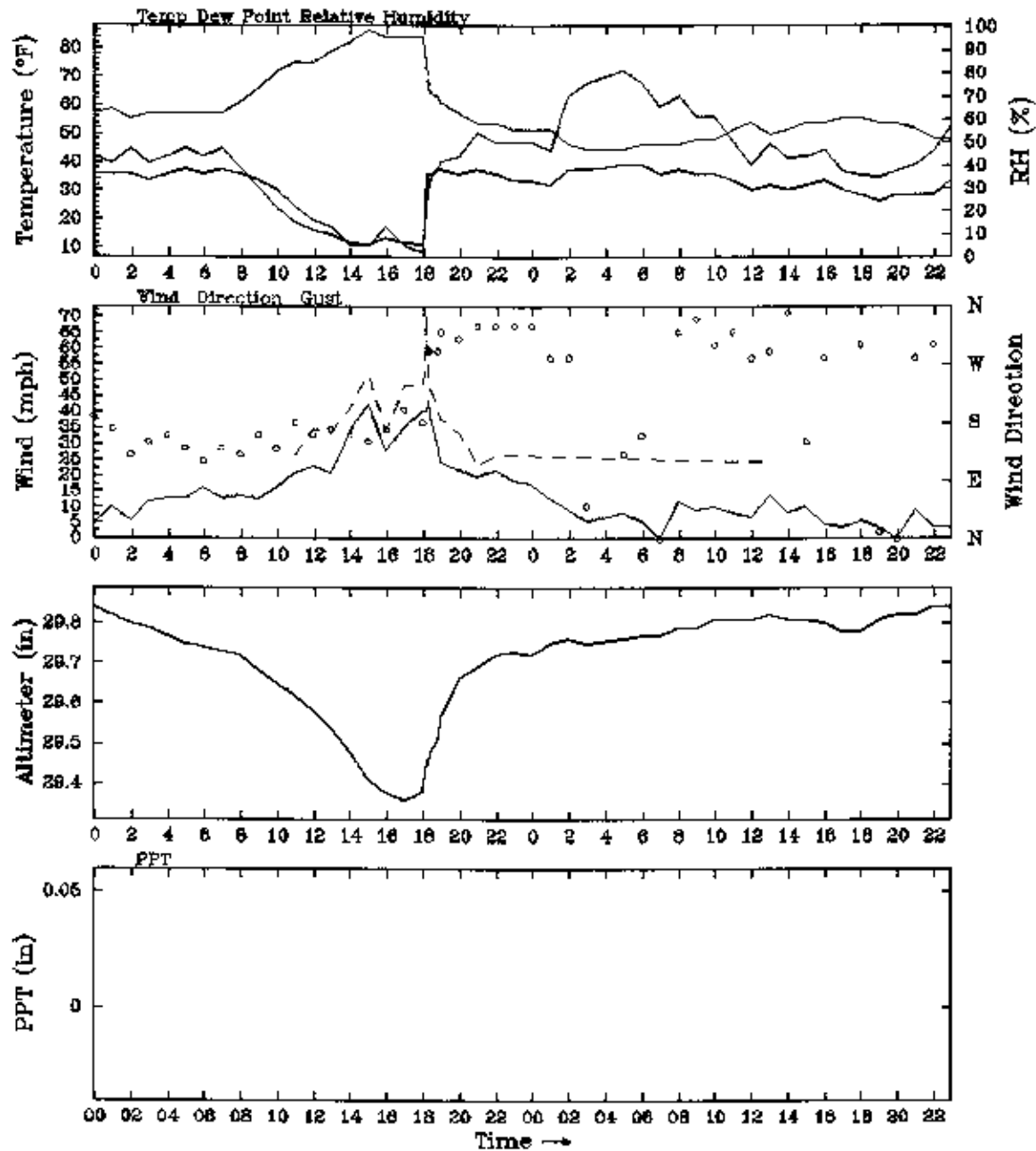


Atmospheric variables including temperature, wind speed, and direction from the Salt Lake City Airport from February 1, 2003 through February 2, 2003



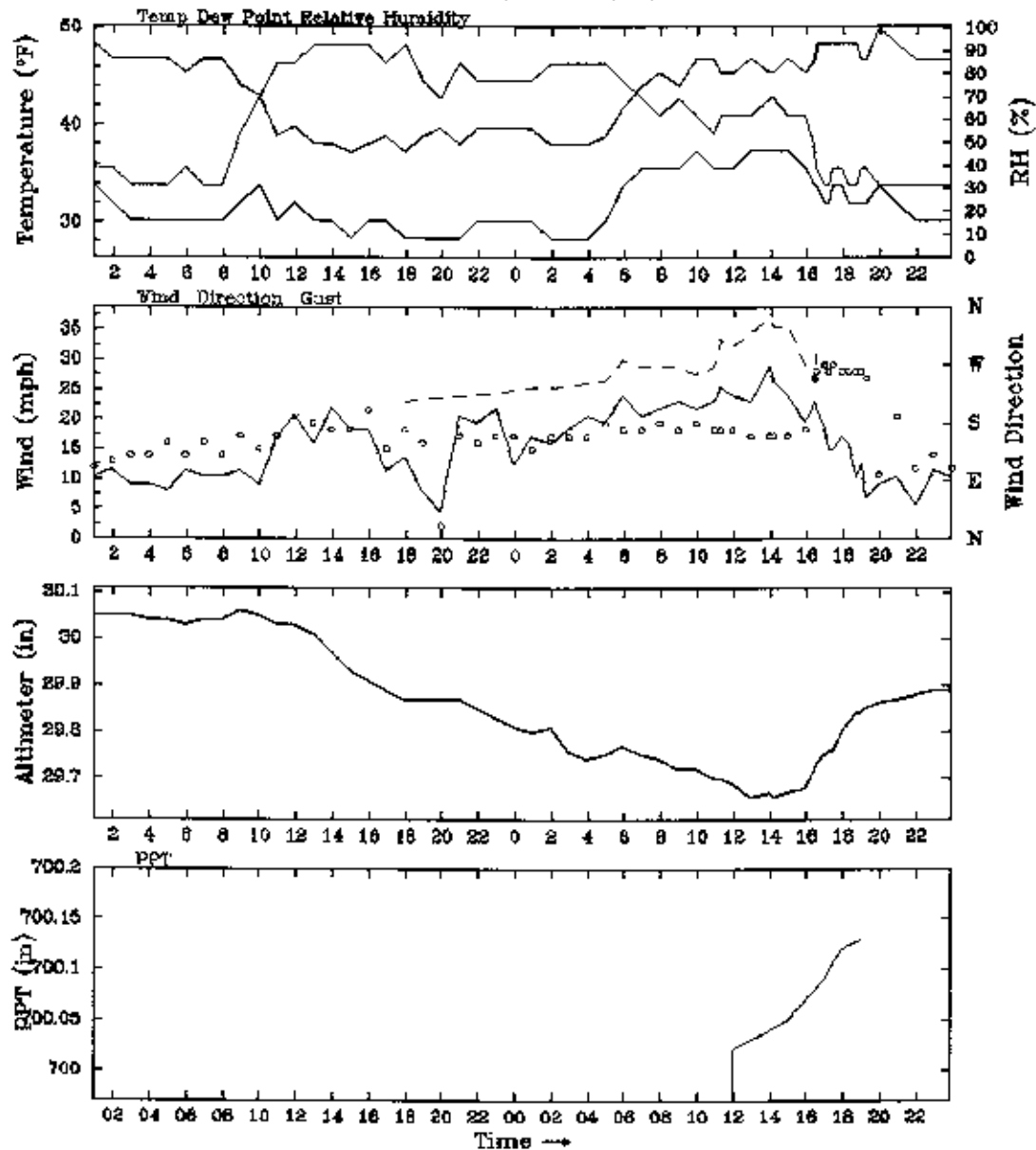
TEOM data from Hawthorne, Linden, and Ogden PM10 monitors from May 10, 2003 through May 11, 2003

Salt Lake City, Salt Lake City International Airport
Start 5/9/04 23:55 (MDT) - End 5/11/04 22:55 (MDT)



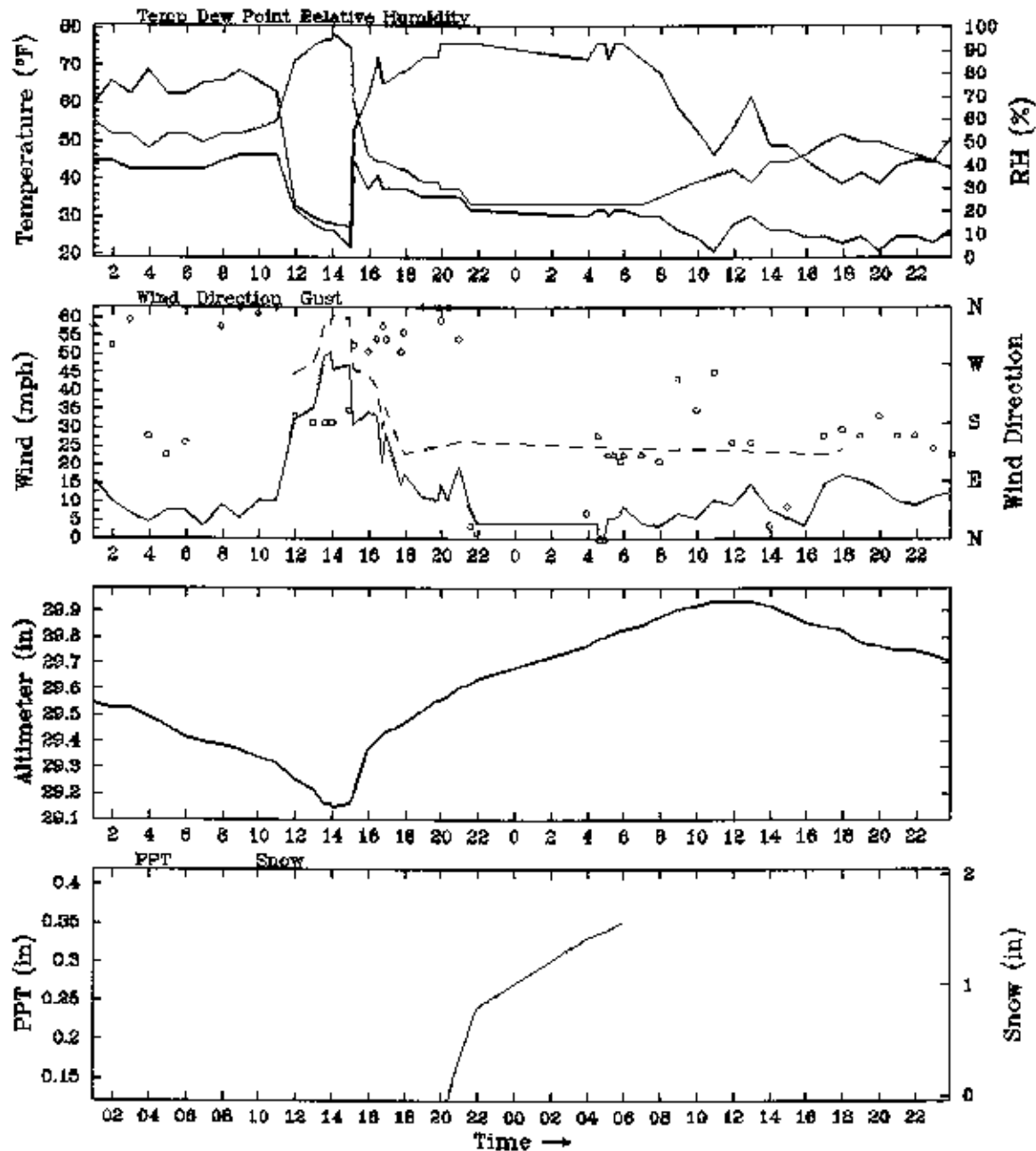
Atmospheric variables including temperature, wind speed, and direction from the Salt Lake City Airport from May 10, 2003 through February 11, 2003

Salt Lake City, Salt Lake City International Airport
Start 2/25/04 00:55 (MST) - End 2/26/04 23:55 (MST)



Atmospheric variables including temperature, wind speed, and direction from the Salt Lake City Airport from February 25, 2002 through February 26, 2002

Salt Lake City, Salt Lake City International Airport
Start 4/15/02 00:55 (MDT) - End 4/16/02 23:55 (MDT)



Atmospheric variables including temperature, wind speed, and direction from the Salt Lake City Airport from April 15, 2003 through April 16, 2003

Additional meteorological and air quality can be found for the event days on the attached Data CD's

R 307-210-1

~~A~~

NOTIFICATION

BEFORE THE
UTAH AIR QUALITY BOARD

In the Matter of:

*

*

Unit 3, Intermountain Power Service
Corporation, Millard County, Utah
DAQE-AN0327010-04

*

Notification of Further Proceedings

*

*

1. By pleading dated November 15, 2004, the Utah Chapter of the Sierra Club and Grand Canyon Trust filed a Request for Agency Action seeking review of the October 15, 2004 decision by the Executive Secretary of the Utah Air Quality Board to issue an Approval Order granting a permit to Intermountain Power Service Corporation to construct and operate an additional coal-fired power plant Unit #3 at the Intermountain Power Plant in Millard County, Utah. The Sierra Club and Grand Canyon Trust also filed a Statement of Standing/Petition to Intervene.

2. By letter dated November 12, 2004, the Intermountain Power Service Corporation (IPSC) filed a Request for Agency Action appealing the Approval Order granting a permit to IPSC to construct and operate Unit #3, which was supplemented by letter dated November 15, 2004.

3. By pleading dated December 23, 2004, the Millard County Commission filed a Statement of Standing and Petition to Intervene in the above-captioned proceeding.

4. By pleading dated January 4, 2005, PacificCorp filed a Petition to Intervene in the above-captioned proceeding, and included a Statement of Standing.

Parties and Intervention

Pursuant to UAC R307-103-6, the Executive Secretary and IPSC are considered to be parties to the proceeding. Sierra Club and Grand Canyon Trust must be granted intervention by the Board under R307-103-6 in order to go forward with their Request for Agency Action. In addition, the Millard County Commission and PacifiCorp must be granted intervention to participate in the proceedings.

Sierra Club and Grand Canyon Trust, the Millard County Commission, and PacifiCorp have filed Petitions to Intervene with Statements of Standing to demonstrate that they qualify as Intervenors. Any responses to any intervention request shall be submitted by January 28, 2005. Any reply will be submitted by February 11, 2005. The Board will then make a decision as to whether to grant intervention to Sierra Club and Grand Canyon Trust, the Millard County Commission, and PacifiCorp at its March Board Meeting.

Board Action and Response to Pleadings

In accordance with the Utah Administrative Procedures Act, Utah Code Ann. § 63-46b-3, the Board hereby notifies the Sierra Club and Grand Canyon Trust, the Millard County Commission, PacifiCorp, and the parties that further proceedings are required to determine the agency's response to the requests. This proceeding will be identified by the agency's reference license number and facility name as specified in the above caption. Under Utah Administrative Code § R307-103-4(1) these proceedings will be conducted formally. All respondent parties may file a written response to the Request for Agency Action within thirty days of the date the intervention petitions are ruled upon.

Hearing Schedule

No hearing has yet been scheduled by the Board. Parties are encouraged pursuant to UAC R307-103-7 to propose to the Board a schedule for establishing the administrative record, discovery and other pre-hearing proceedings, for the hearing, and for any post-hearing proceedings.

Presiding Officer

The Board hereby appoints _____ as the Presiding Officer for this matter with the authorities and duties as stated under UAC R307-103-7.

Service of Pleadings

All filings with the Board shall be served upon all parties to the proceeding and to all persons having a petition to intervene pending before the Board.

DATED this _____ day of December, 2004.

Utah Air Quality Board

CERTIFICATE OF SERVICE

I hereby certify that on this _____ day of January, 2005, I caused a copy of the forgoing Notification of Further Proceedings to be mailed by United States Mail, postage prepaid, to the following:

Joro Walker
Sean Phelan
Western Resource Advocates
1473 S 1100 E Suite F
Salt Lake City, Utah 84105

Rick Sprott, Executive Secretary
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, Utah 84114

Chris Stephens
Assistant Attorney General
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, Utah 84114

Richard Rathbun
Assistant Attorney General
160 E 300 S
Salt Lake City, Utah 84114

E. Blaine Rawson
George Haley
Holme Roberts and Owen
299 S Main Street #1800
Salt Lake City, 84111

LeRay G. Jackson
Millard County Attorney
259 North Hwy 6
P.O. Box 545
Delta, Utah 84624

Martin K. Banks
Richard R. Hall
Stoel Rives
201 South Main, Suite 1100
Salt Lake City, Utah 84111

Michael G. Jenkins
Assistant General Counsel
PacifiCorp
201 South Main, Suite 2200
Salt Lake City, Utah 84111

Fred G Nelson
Counsel, Utah Air Quality Board
160 East 300 South 5th Floor
Salt Lake City, Utah 84114-0873

BEFORE THE
UTAH AIR QUALITY BOARD

In the Matter of:

*

*

Unit 3, Intermountain Power Service
Corporation, Millard County, Utah
DAQE-AN0327010-04

*

Notification of Further Proceedings

*

*

1. By pleading dated November 15, 2004, the Utah Chapter of the Sierra Club and Grand Canyon Trust filed a Request for Agency Action seeking review of the October 15, 2004 decision by the Executive Secretary of the Utah Air Quality Board to issue an Approval Order granting a permit to Intermountain Power Service Corporation to construct and operate an additional coal-fired power plant Unit #3 at the Intermountain Power Plant in Millard County, Utah. The Sierra Club and Grand Canyon Trust also filed a Statement of Standing/Petition to Intervene.

2. By letter dated November 12, 2004, the Intermountain Power Service Corporation (IPSC) filed a Request for Agency Action appealing the Approval Order granting a permit to IPSC to construct and operate Unit #3, which was supplemented by letter dated November 15, 2004.

Parties and Intervention

Pursuant to UAC R307-103-6, the Executive Secretary and IPSC are considered to be parties to the proceeding. Sierra Club and Grand Canyon Trust must be granted intervention by the Board under R307-103-6 in order to go forward with their Request for Agency Action.

Sierra Club and Grand Canyon Trust have filed a Statement of Standing/Petition to

All filings with the Board shall be served upon all parties to the proceeding and to all persons having a petition to intervene pending before the Board.

DATED this _____ day of December, 2004.

Utah Air Quality Board

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Chris Stephens
Assistant Attorney General
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, Utah 84114

Richard Rathbun
Assistant Attorney General
160 E 300 S
Salt Lake City, Utah 84114



BEFORE THE
UTAH AIR QUALITY BOARD

In the Matter of:

*

*

Sevier Power Company Power Plant
Sevier County, Utah
DAQE-AN2529001-04

*

Notification of Further Proceedings

*

*

1. By pleading dated November 12, 2004, the Utah Chapter of the Sierra Club and Grand Canyon Trust filed a Request for Agency Action seeking review of the October 12, 2004 decision by the Executive Secretary of the Utah Air Quality Board to issue an Approval Order granting a permit to Sevier Power Company to construct and operate a coal-fired power plant in Sevier County, Utah. The Sierra Club and Grand Canyon Trust also filed a Statement of Standing and Petition to Intervene.

2. By pleading dated November 1, 2004, the Sevier County Citizens for Clean Air and Water (Sevier Citizens) filed a Request for Agency Action appealing the Approval Order granting a permit to Sevier Power Company to construct and operate a coal-fired power plant in Sevier County, Utah, and petitioned to intervene in the proceeding.

Parties and Intervention

Pursuant to UAC R307-103-6, the Executive Secretary and Sevier Power Company are considered to be parties to the proceeding. Sierra Club, Grand Canyon Trust, and the Sevier Citizens must be granted intervention by the Board under R307-103-6 in order to go forward with their requests for agency action.

Service of Pleadings

All filings with the Board shall be served upon all parties to the proceeding and to all persons having a petition to intervene pending before the Board.

DATED this _____ day of December, 2004.

Utah Air Quality Board

CERTIFICATE OF SERVICE

I hereby certify that on this _____ day of December, 2004, I caused a copy of the forgoing Notification of Further Proceedings to be mailed by United States Mail, postage prepaid, to the following:

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Rick Sprott, Executive Secretary
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, Utah 84114

Chris Stephens
Assistant Attorney General
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, Utah 84114

INFORMATION ITEMS

PM 10

MAINTENANCE

January 5, 2005

Background:

Scope of Project

Progress Made So Far:

- 1 Episode Selection
- 2 Base-Year Inventory
- 3 Model Validation
- 4 Projection-Year Inventories
- 5 Draft Model Results
- 6 Proposed SIP Conditions for Industrial Sources

Progress Yet to Come:

Final Modeling Runs

Written Report

Associated Issues

Conformity

Commitments

Rule Revisions:

Colleen

Revised Schedule for the PM10 Maintenance Plan: 1/4/05

The table below provides an update with respect to some of the more significant milestones in developing the UAM Maintenance Plan.

Milestone	Revised Schedule: Completion Date
Draft Model Complete	August 4, 2004
Draft SIP Conditions Sent to Sources	October 20, 2004
Stakeholder Meeting	November 17, 2004
Process Feedback From Stakeholders (SIP Conditions and Final Modeling)	January 17, 2005
Stakeholder Meeting for Permitting	February 1, 2005
Prepare Document for Public Review (Parts A and H)	February 18, 2005
Prepare Accompanying Rule Changes for Public Review	February 18, 2005
Request Board Approval for Comment	March 2, 2005
Compile Technical Support	March 15, 2005
Public Comment Period Opens	April 1, 2005
Public Comment Period Closes	May 2, 2005
Request State Final Approval from AQB	July 6, 2005
UDAQ Submits Document to EPA	July 15, 2005

VIII. Information Item

A. PM 10 Maintenance Plan Update



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PM10 SIP**SIP Process****Confirming****Emissions****Modeling****Controls****Participants****Meetings****Contacts****Planning**

Background

The State of Utah is developing a maintenance plan for the PM10 nonattainment areas along the Wasatch Front. The maintenance plan relies, in part, on the suite of control strategies that were developed during the 1980's and 1990's to reduce particulate emissions in nonattainment areas. These strategies, such as opacity standards and fugitive dust controls, need to remain in place when Salt Lake County, Utah County and Ogden City are redesignated to attainment to ensure that air quality does not degrade in these areas. Because many of the requirements currently apply only to PM10 nonattainment areas, we need to revise the rules to ensure that the requirements will continue to apply in PM10 maintenance areas.

UDAQ has prepared draft rule changes to maintain the PM10 nonattainment requirements when the areas are redesignated to attainment. In addition, the rules were reviewed critically to determine whether all of the provisions were still needed and were achieving the desired effect. The following general changes were made to the rules

1. Wherever the term nonattainment area was used, the term maintenance area was added if the emission standards or work practices are still needed to reduce PM10 and PM2.5 emissions.
2. A 180-day compliance schedule was added so that sources in any new nonattainment areas will have time to make changes to their processes or to add control equipment to meet the requirements.
3. The rules were changed so that rules in the 200 series will apply only in attainment areas and rules in the 300 series will apply in nonattainment and maintenance areas. This change will allow the State of Utah to remove some of the 200 series rule from the Utah SIP. These rules will remain enforceable by the State but will no longer be enforceable by the EPA. The rules in the 300 series will continue to part of the Utah SIP and will be enforceable by both the State and EPA.
4. The rules were cleaned up to remove outdated requirements and to make the requirements easier to find and to understand. Some substantive changes were made as part of this clean up. These changes are identified below.

The following changes were made to specific rules.

R307-101-2 Definitions

We deleted definition of actual area of nonattainment. This term was originally used to distinguish TSP areas that were actually violating the standard from the broader area (entire county) that was designated nonattainment. There were maps included in the SIP that showed the "actual area of nonattainment" for TSP. In the early 1990's the PM10 SIP replaced the TSP SIP, and there is no longer a distinction between these terms. The continued use of this term in our rules is confusing, and it should be replaced by the term "nonattainment area" throughout the rules.

We added definition of EPA Method 9. EPA Method 9 is used to measure opacity. This definition will simplify the rules because the full reference will not be needed each time the definition is used.

We added definition of maintenance area. As new areas are redesignated to attainment under the provisions of a maintenance plan, the term will be modified to include the new area. The new definition includes a list of current maintenance areas.

We modified the definition of nonattainment area to refer to EPA's designation process. The official designations for all areas in Utah can be found in 40 CFR 81.345.

We deleted definition of PM10 nonattainment area, because the backsliding provisions will now be addressed with the new term, maintenance area.

We changed definition of PM10 Particulate Matter to be a definition for PM10. The term PM10 is used throughout the rules, and the term PM10 particulate matter is only used in a few places.

We removed specific reference to sulfur dioxide and nitrogen oxides from the definition of PM10 Precursor. We removed these references to avoid implication that there were no other PM10 precursors to consider.

We moved definition of Road to general definitions rather than repeating the definition in multiple rules.

R307-165 Emission Testing

We removed duplicate and outdated requirements. In addition, the requirement to test new sources within 6 months of startup was removed because it is more appropriate to establish the initial testing schedule in the AO.

R307-201 General Emission Standards

This rule was rewritten to apply only in attainment areas. A separate rule, R307-305, establishes emission standards for PM10 nonattainment and maintenance areas. In addition, language was removed that exempted gasoline powered engines from opacity requirements for the first 100 yards and for a stationary source for 3 minutes every hour. This exemption should not be needed with these types of engines. Also, language that allows an exception to opacity standards, upon approval by the Board, for diesel locomotives operating above 6000 feet was removed because this provision does not appear to have ever been used.

R307-204-3 Emission Standards: Smoke Management Definitions

The term maintenance area was removed because this term is now defined in the general definitions. No other changes were made to the rule.

R307-205 Emission Standards: Fugitive Emissions and Fugitive Dust

This rule was rewritten to apply only in attainment areas. In addition, outdated language was removed that required mining and tailings operations in nonattainment areas to submit a fugitive dust plan by 1981. Updated requirements for fugitive dust plans in nonattainment areas can be found in R307-309.

R307-206 Emission Standards: Abrasive Blasting

The rule was rewritten to clarify the existing requirements (the current rule is very difficult to understand). The requirements for nonattainment and maintenance areas were moved into a separate rule, R307-306.

R307-207 Emission Standards: Residential Fireplaces and Stoves

The requirements for residential fireplaces and stoves were moved into a separate rule to make them easier to find.

R307-302 Davis, Salt Lake, Utah Counties: Residential Fireplaces and Stoves

The rule has been changed to formalize the woodburning control program that has been implemented on a voluntary basis in Weber County and parts of Davis County. We included the woodburning program in the PM10 model as an important part of our attainment demonstration. By using this control strategy, we can more effectively document the emissions reductions that we have achieved from this program. It is not anticipated that this change will be a significant issue for the residents of these areas because the program has already been successfully implemented as a voluntary measure in these areas for a number of years. Residents in these areas will have until November 2006 to register their stoves as a sole source of heat.

R307-305 Nonattainment and Maintenance Areas for PM10: Emission Standards

R307-305-2 contained explanatory language regarding emission levels needed to attain the PM10 standard. This language was moved to the new purpose statement because it was not intended to establish any new standards, but was rather intended to show how the SIP limitations met the CAA requirements.

Compliance schedule requirements for implementing the PM10 SIP were removed because these actions have already been completed for a number of years. A new section was added establishing a compliance schedule for any new PM10 nonattainment areas. The provisions in this rule would apply 180 days after a new area is designated nonattainment for PM10.

The TSP requirements that now only apply in Weber County were deleted. These source-specific limitations and compliance schedules were originally developed for TSP nonattainment areas. The provisions were kept in place to prevent backsliding when the PM10 standard was promulgated. All of the listed sources in Weber County have either shut down, or have received an approval order that covers their emissions so the rule provisions are no longer necessary to prevent backsliding.

Finally, some language from R307-201 was added to this rule. This was necessary because R307-201 will no longer apply in the nonattainment and maintenance areas.

R307-307. Davis, Salt Lake, and Utah Counties: Road Salting and Sanding

The provisions of this rule will remain in place when these areas are redesignated to attainment because the rule, as written, refers to the specific counties rather than to nonattainment areas. No changes are needed to address the backsliding issue.

R307-309 Nonattainment and Maintenance Areas for PM10: Fugitive Emissions and Fugitive Dust

Language that delayed applicability of the rule for sources with operating permits until the renewal date for their permit was removed because 5 years have passed since the effective date of the rule and all affected sources should now have incorporated the provisions into their permit.

Language requiring existing sources to update their fugitive dust plans by May 4, 1999 was removed because that compliance date was 5 years ago.

We reworded exemptions to address EPA's concerns. Specifically, we deleted exemptions related to R307-305 and reworded exemptions for R307-307 to only exempt activities related to R307-307. In addition, the EPA was concerned with our 25 mph exemption for controlling fugitive dust, which was modified to 30 mph matching the language in the Nature Events Plan.

Language regulating mining activities and tailing piles and ponds was added to this rule because of the change in applicability (see background #3).

Track out provision was consolidated from two sections into the existing strategies to control fugitive dust. We did this to reduce redundancy in the rule.

We modified the format for the General Requirements section to match other section and help with readability.

R307-310 Salt Lake County: Trading of Emission Budgets for Transportation Conformity

UDAQ staff recommends deletion of R307-310 as part of the new PM10 maintenance plan. The new plan contains a conformity budget that was developed using the latest transportation and mobile emission models. Because of improvements in the methods used to develop the proposed conformity budgets, it is no longer necessary to allow trading between the PM10 and NOx budgets. The technical analysis for the proposed maintenance plan does not provide the information that would be needed to establish a trading ratio between pollutants.

Any questions please contact: mcarlille@utah.gov

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Department of Environmental Quality



Division of Air Quality

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PRELIMINARY DRAFT
For Stakeholder Review

The State of Utah is in the process of developing a PM10 maintenance plan for Utah County, Salt Lake County and Ogden City. When the plan is completed, the State will request that EPA redesignate these areas to attainment for PM10. These areas have been meeting the national ambient air quality standard (NAAQS) for PM10 since 1995 due to the significant emission reductions that were required by the PM10 State Implementation Plan (SIP) during the mid-1990s.

An attainment designation will formally recognize the air quality improvement that has occurred in these areas. However, it is important to look to the future and ensure that the improvements from the PM10 SIP are not eroded over time due to the growth of new sources. Even more importantly, the entire Wasatch Front is borderline attainment for the new PM2.5 NAAQS. The primary mechanism that is used to address growth from stationary sources is Utah's permitting program. UDAQ has been evaluating the best way to implement this program to ensure that air quality does not degrade in the new PM10 maintenance areas.

When the current PM10 nonattainment areas in Utah are redesignated to attainment, the Prevention of Significant Deterioration (PSD) permitting program in R307-405 will become applicable in the new maintenance areas. New major sources or major modifications will need to perform modeling to ensure that PM10 levels do not deteriorate more than a set amount (called increment) and also to ensure that the new source will not cause a violation of the PM10 NAAQS. Minor sources and modifications will also need to do air quality modeling as outlined in R307-410 to ensure that the NAAQS for PM10 and PM2.5 are not exceeded. Utah's core permitting program in R307-401 will continue to require that all new and modified sources use the best available control technology (BACT).

When Salt Lake and Davis Counties were redesignated to attainment for ozone, the PSD program was implemented in the former nonattainment areas. One of the challenges that Utah faced during this transition was the lack of good permitting models to determine the impact on ozone levels. Ozone is not emitted directly, but is instead formed through a series of complex photochemical reactions from volatile organic compounds and nitrogen oxides. Photochemical models have been developed to simulate this process, but these models are complex and difficult to run. It is not practical to use these types of models for day-to-day permitting decisions. Instead, these models are used primarily for long-term planning, such as the development of a new SIP. The ozone maintenance plan addressed this permitting difficulty by retaining the offset provisions from the Nonattainment NSR permitting rule, R307-403, when the area was redesignated to attainment. Even though the impact of a new source could not be modeled directly, the offsets would ensure that emissions of the precursors in the area would not increase due to the construction of the new source.

A portion of the particulate matter (PM) measured in Utah is directly emitted as particles (such as dust and soot,) and these direct emissions can be modeled to determine nearby

impact. During winter temperature inversions, however, a significant portion of the PM is formed from gases (nitrogen oxides and sulfur dioxide). The secondary formation of PM becomes an even larger part of the overall problem when you look at fine particles (PM2.5). As with ozone, the chemistry driving the formation of PM during winter temperature inversions is complex, and complex modeling is required to simulate this process. It is not practical to use these complex models for day-to-day permitting decisions, and so the effects of an increase in NOx or SO2 on overall PM10 levels during the winter may not be adequately evaluated through the PSD permitting process. Another mechanism is needed to manage the growth of NOx or SO2 sources in the new PM10 maintenance areas.

The Nonattainment NSR permitting rule, R307-403, applies to the current PM10 nonattainment areas. This rule requires a source to offset an increase of PM10, NOx or SO2 by decreasing emissions from another source in the nonattainment area. The PM10 offset provisions have been effective, and have proved workable for industry in the area. These provisions have prevented a significant increase in emissions from new sources, including minor sources, while still allowing new source growth in the area. As demand increases for "emission reduction credits" an incentive is created for existing sources to decrease their emissions and then sell the credits to a new source that needs an emission offset.

Utah is just meeting the new PM2.5 standard, and any emission growth could result in a new nonattainment designation. The offset program is a straightforward mechanism to allow growth without degrading air quality.

Recommendations:

1. The PM10 offset provisions of R307-403-5 should be moved to a new rule, R307-421 to keep these provisions in place when Salt Lake County and Utah County are redesignated to attainment for PM10. This rule change will maintain the current program that has been very effective to address emissions growth in the area. This approach would be similar to what was done in the ozone maintenance plan.
2. There may not be enough stationary sources in Ogden City to create a viable market for emission offsets in that area. Two options are under consideration. Ogden City could be left out of the program because stationary sources are not a significant portion of the inventory in that area. Alternatively, the program could be expanded to include all of Weber County and Davis County. An expansion of the current program would be consistent with the findings of the maintenance plan modeling. Emissions from the entire urban area along the Wasatch Front are contributing to PM10 and PM2.5 levels during winter temperature inversions.
3. The applicability thresholds in the current rule should be modified so that new or modified sources with 25 tons/year or greater emissions of SO2 or NOx would need to obtain offsets, with no interpollutant trading. The maintenance plan modeling does not provide the level of analysis that would be needed to establish trading ratios between pollutants. Primary PM10 emissions can be modeled for nearby impacts and so emission offsets do not need to be maintained for this pollutant.
4. The new rule, R307-421, should be kept as a state rule and not submitted to EPA as part of the maintenance plan. This will allow greater flexibility for implementing the rule, and should not affect the approvability of the maintenance plan because the plan does not claim any emission reduction credit for this provision. This would be similar to the approach that was used for the ozone maintenance areas.

Any Questions or Comments Contact: Cdelaney@utah.gov or call (801) 536-4248

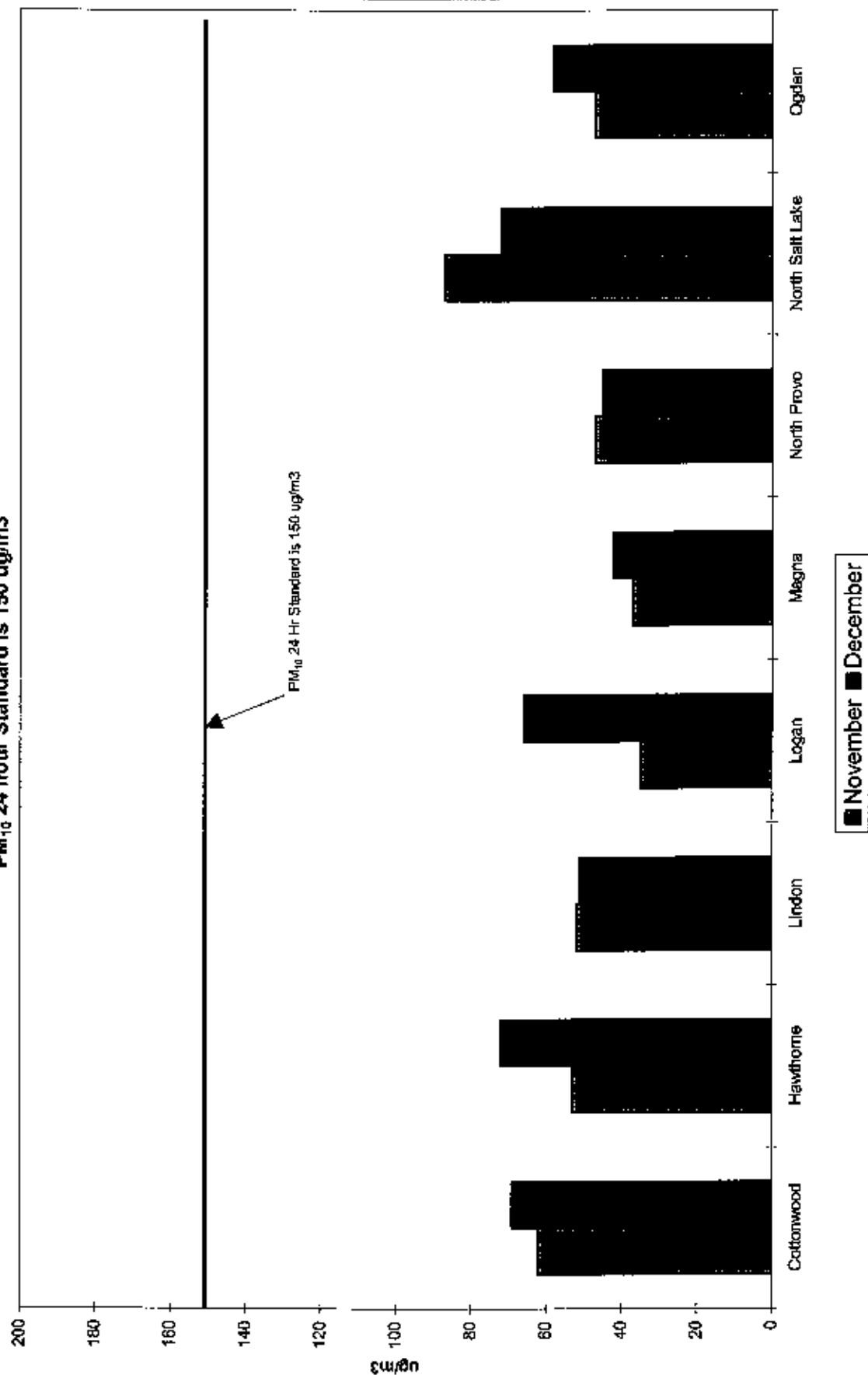
COMPLIANCE

HAPS

AIR MONITORING

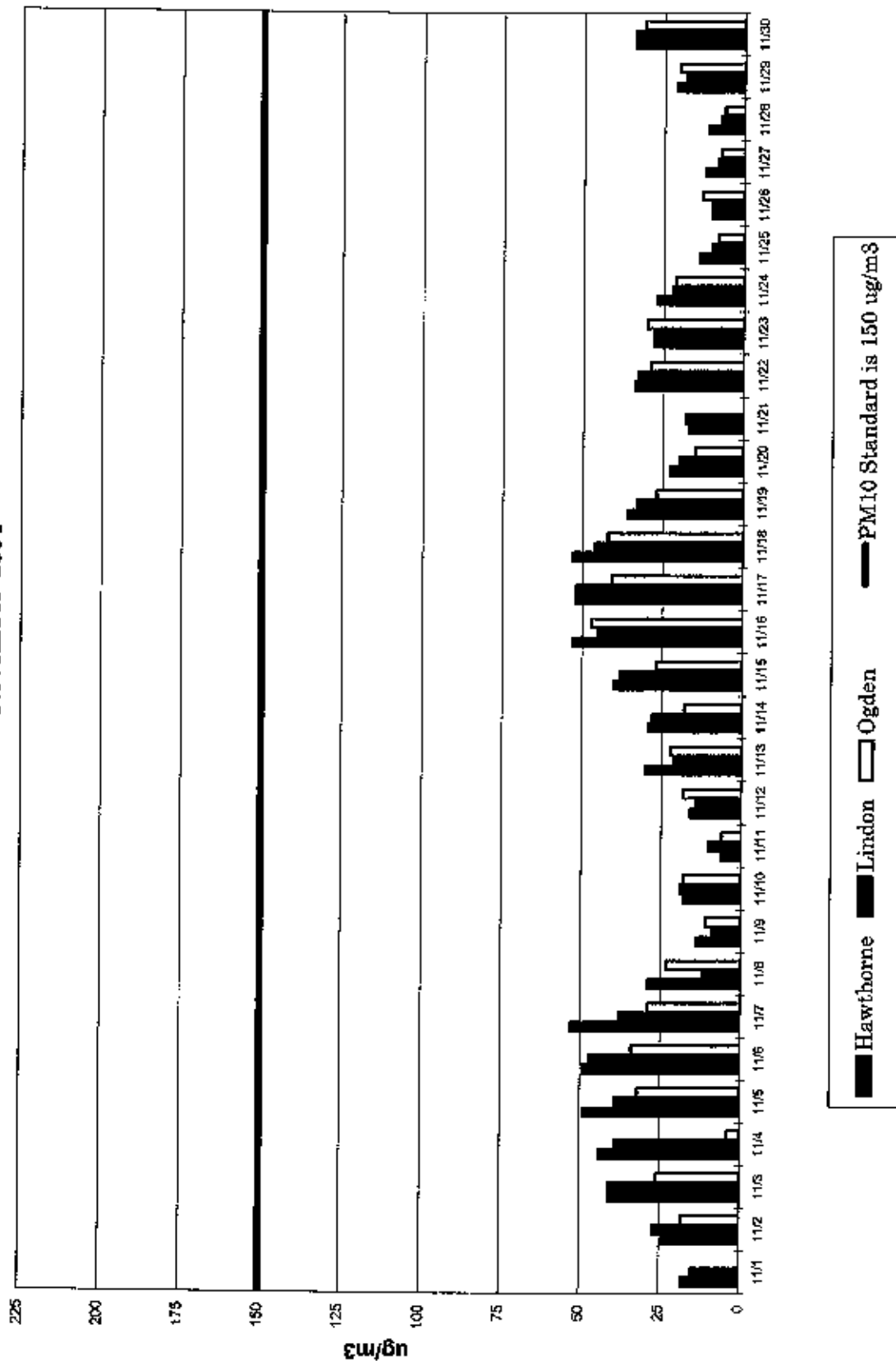
Highest PM₁₀ Concentration for November-December 2004

PM₁₀ 24 hour Standard is 150 ug/m³



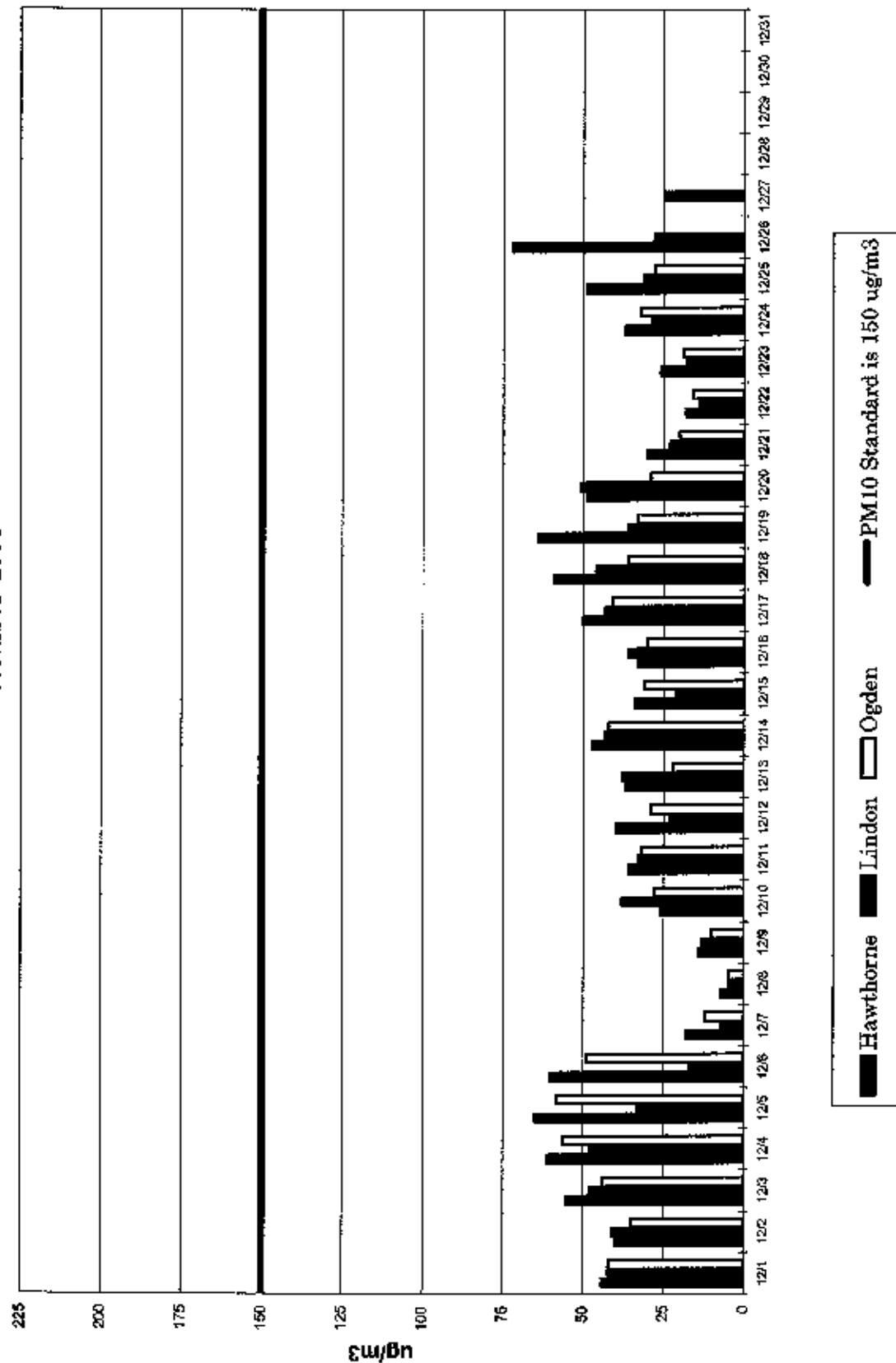
PM₁₀ Filter at Hawthorne, Lindon, & Ogden

November 2004



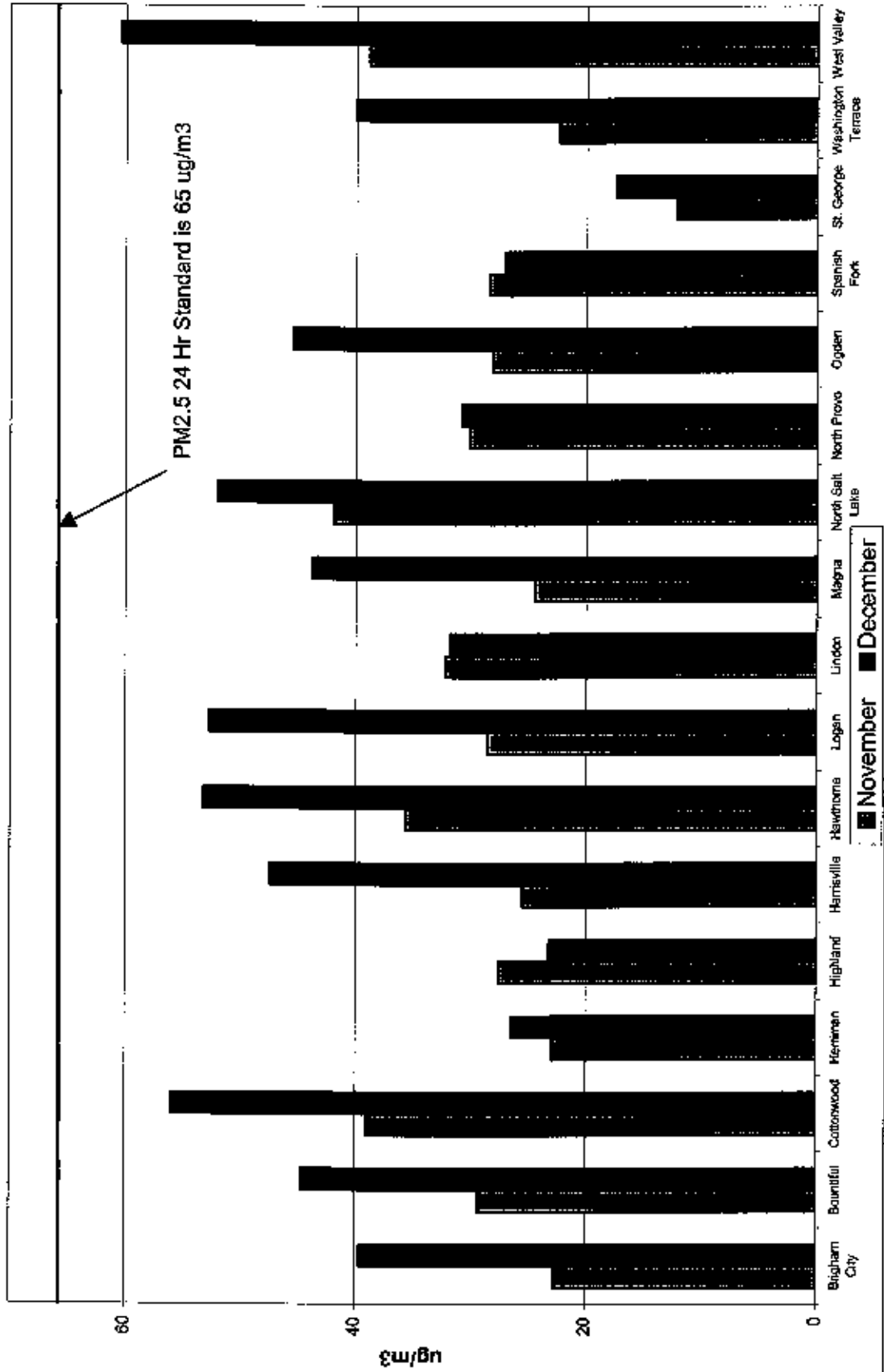
PM₁₀ Filter at Hawthorne, Lindon, & Ogden

December 2004



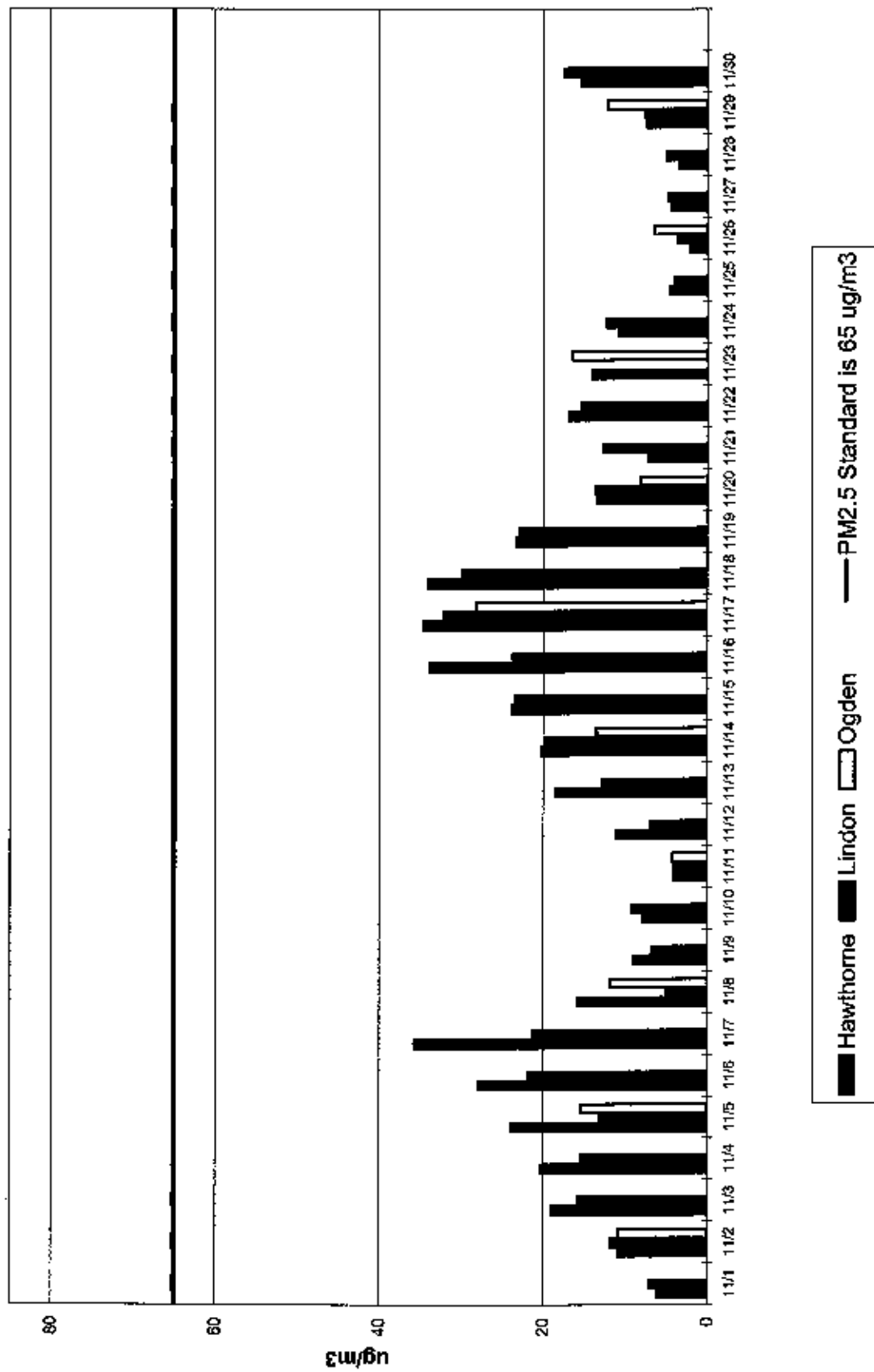
Highest PM2.5 Concentration for November-December 2004

PM2.5 24 Hour Standard is 65 ug/m3



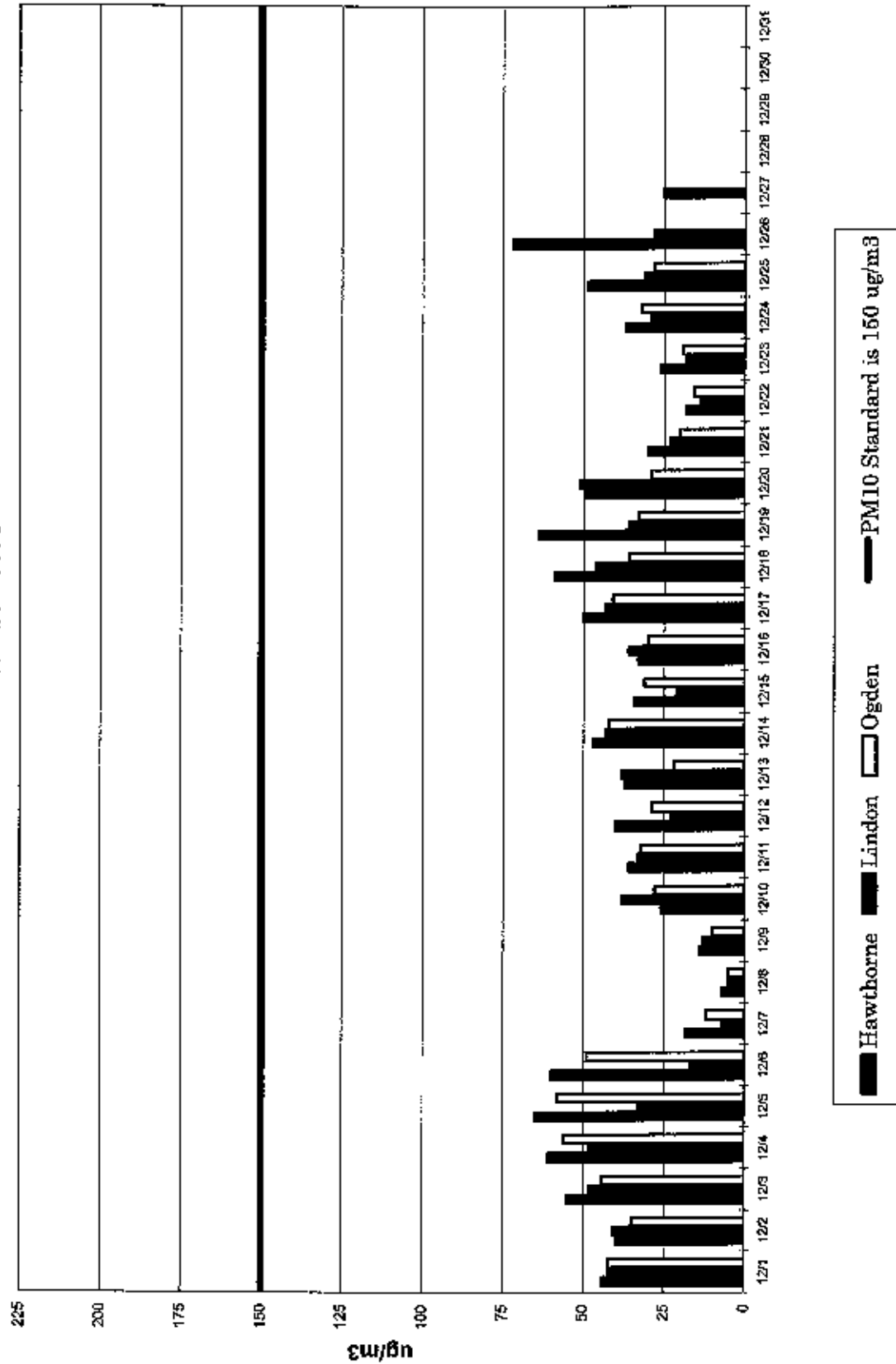
PM_{2.5} Filter at Hawthorne, Lindon, & Ogden

November 2004



PM₁₀ Filter at Hawthorne, Lindon, & Ogden

December 2004



SUMMARY
WOOD BURNING CONTROL PROGRAM

	WINTER	SALT LAKE/DAVIS		UTAH COUNTY		WEBER COUNTY		CACHE COUNTY	
		Yellow	Red	Yellow	Red	Yellow	Red	Yellow	Red
PM2.5	2004-2005	6	2	0	0	0	0	0	2
	2003-2004	4	23	3	15	12	9	4	25
	2002-2003	5	2	0	0	0	0	1	1
	2001-2002	11	8	7	3	9	5	22	5
	2000-2001	14	10	2	4	5	0		
PM10	1999-2000	1	0	0	0	0	0		
	1998-1999	0	0	0	0	0	0		
	1997-1998	8	3	0	0	0	0		
	1996-1997	5	0	3	0	0	0		
	1995-1996	7	7	6	5	4	0		
	1994-1995	8	7	3	6	0	0		
	1993-1994	8	0	14	2	0	0		
	1992-1993	22	16	23	23	0	0		

M:\Woodburn\Woodburn Summary

UTAH STATE DIVISION OF AIR QUALITY

47mm Partisol: PM10 Concentration Adjusted to Sea Level (24-hr average) in Micrograms per Cubic Meter

2004 November

Date	Cottonwood	Hawthorn	Lindon	Logan 4	Magna(W)	Moab	NProvo	NProvo-X	NSL	NSL-X	Ogden2
11/01		18	15						22		
11/02	27	24	27	13	19		24		41		18
11/03		41	41						59		26
11/04		44	39						68		4
11/05	49	49	39	25	37		31	29	87	89	32
11/06		49	47						72		34
11/07		53	38						72		29
11/08	29	29	12	35	25		12		69		23
11/09		14	9						17		11
11/10		18	19						25		18
11/11	12	6	10	8	7		7	7	17	17	6
11/12		16	14						23		18
11/13		30	21						37		22
11/14	26	29	28	15	19		25		30		18
11/15		40	38						55		27
11/16		53	45						71		47
11/17	62	52	52	31	31		47	47	71	73	41
11/18		53	46						67		42
11/19		36	33						34		27
11/20	20	23	20	12	10		19		26		15
11/21		17	18						25		
11/22		34	33						46		29
11/23	27	28	28	23	14		25	26	48	51	30
11/24		27	22						36		21
11/25		14	10						12		8
11/26	10	10	10	6	6		8		6		13
11/27		12	8						9		7
11/28		11	7						6		6
11/29	19	21	18	18			16	15	33	33	20
11/30		34	34						43		31

Arith Mean	28	29	26	19	19		21	25	41	52	22
Max 24-hr Avg	62	53	52	35	37		47	47	87	89	47
Std. Dev	16	15	14	10	11		12	15	23	29	11
Days of Data	10	30	30	10	9		10	5	30	5	28
Days >150											
Yearly Avg	31	29	29	29	24		25	27	42	48	29

UTAH STATE DIVISION OF AIR QUALITY

PM2.5 Actual Concentration (24-hr average) in Micrograms per Cubic Meter

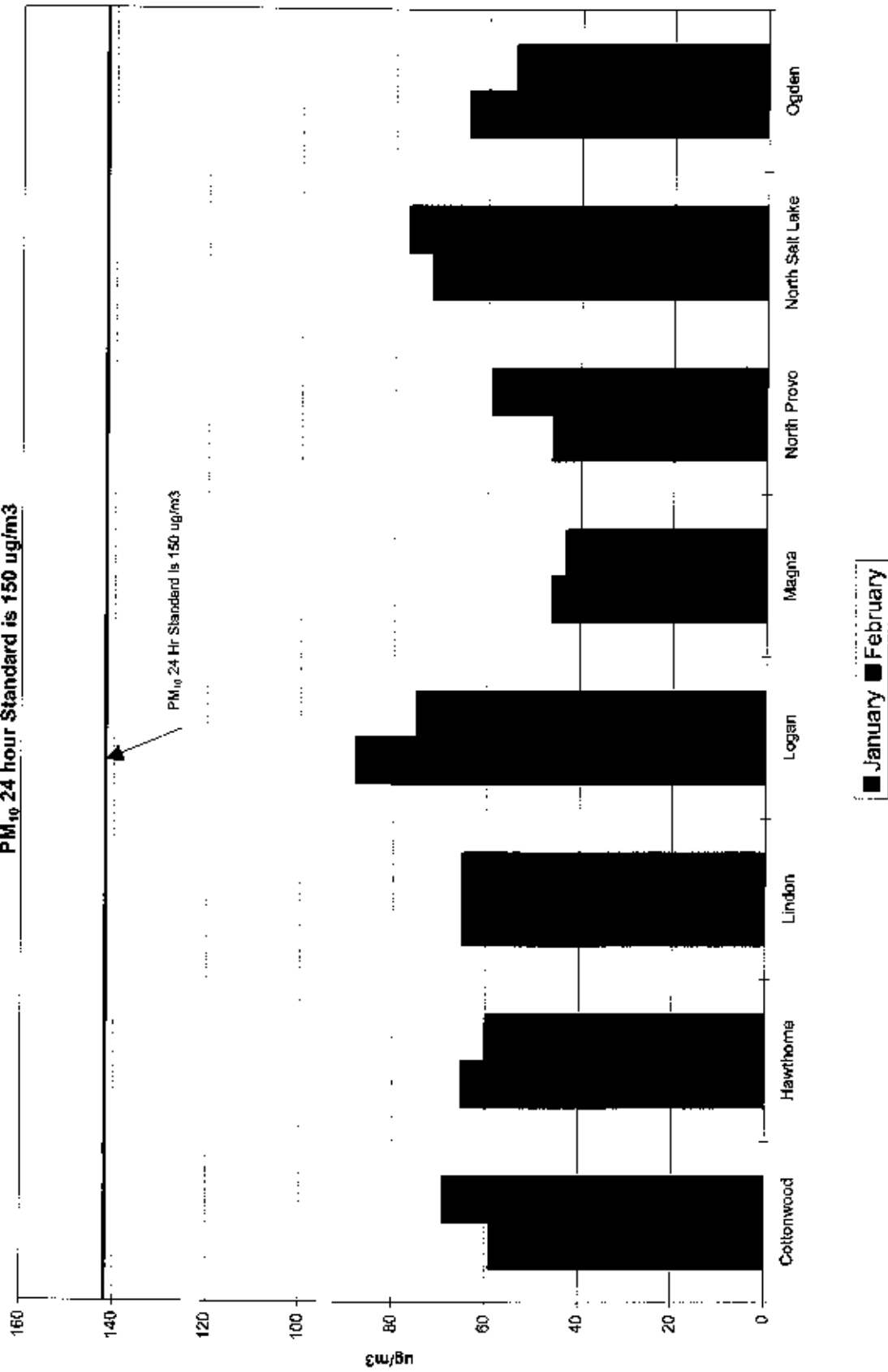
2004 November

	BR	BV	CW	HE	HG	HV	HW	L4	X4	LN	LX	MG	N2	NP	O2	SF	SW	WT	WX	WV	VX
11/01							8.1	2.5	2.6	7.0											
11/02	4.6	10.4	13.2	10.1	9.9	6.1	10.9	6.2	5.4	11.8		9.0	15.6	11.7	10.6	8.4		7.8		14.7	
11/03							19.0	9.0	9.4	15.8											
11/04							20.3	9.3	9.1	15.4											
11/05	9.3	20.4	24.8	13.7	9.6		24.0	10.5	10.6	13.2	13.7	20.8	38.7	13.3	15.4	8.1		11.5	11.7	30.9	31.0
11/06							27.9	13.6	13.7	21.6											
11/07							35.7	10.5	11.0	21.3											
11/08	6.4	18.7	18.3	7.8	28.0	10.4	15.8	13.8	14.0	5.0		16.2	25.7	8.1	11.9	3.0	2.2	9.5		22.2	
11/09							9.0	11.7	12.0	8.8											
11/10							7.9	10.3	10.8	9.3											
11/11	3.1	5.9	7.3	3.8	9.2	3.6	4.1	5.6	5.2	4.1	4.6	5.0	8.9	4.0	4.3	3.6	7.4	4.0	3.6	5.0	5.4
11/12							11.2	8.9	9.2	7.0											
11/13							16.5	10.3	10.6	12.8											
11/14	10.8	29.3	19.2	16.6	17.9	11.9	20.2	12.5	12.9	19.6		14.5	19.6	17.9	13.5	16.4	8.1	12.7		19.4	
11/15							23.8	8.3	8.3	23.4											
11/16							33.9	20.0	19.8	23.7											
11/17	22.7	26.8	39.0	22.9	27.6	25.6	34.6	16.6	16.8	32.2	32.5	24.5	41.9	30.2	28.2	28.6	11.6	22.4	23.5	36.9	36.9
11/18							34.1	16.4	16.1	29.9											
11/19							23.3	9.3	9.4	23.0											
11/20	5.4	10.3	13.3	7.2	11.8	6.8	13.4	6.9	6.7	13.6		5.2	15.0	12.0	8.2	11.3	5.8	7.2		10.4	
11/21							7.1	5.6	5.6	12.7											
11/22							10.9	9.3	9.3	15.3											
11/23	7.0	14.0	14.6	9.6	12.8	10.6	14.1	10.6	11.0		15.5	9.0	19.2	15.5	16.4	13.6	12.2	10.6	11.1	18.2	17.9
11/24							10.8	13.0	13.5	12.3											
11/25							4.5	6.1	6.2	4.0											
11/26	1.7	1.4	5.0	1.9	1.8	2.5	2.1	3.0		3.6		3.1	3.0	4.1	6.5	2.6	9.0	3.2		4.7	
11/27							4.4	4.5		4.8											
11/28							3.5	2.9		5.0											
11/29	4.7	5.9	6.1	3.9	6.9	6.6	7.4	14.2		7.6	6.3	4.9	8.3	9.1	12.1	7.7	4.6	6.5	6.9	8.5	8.2
11/30							15.3	26.6		17.4											

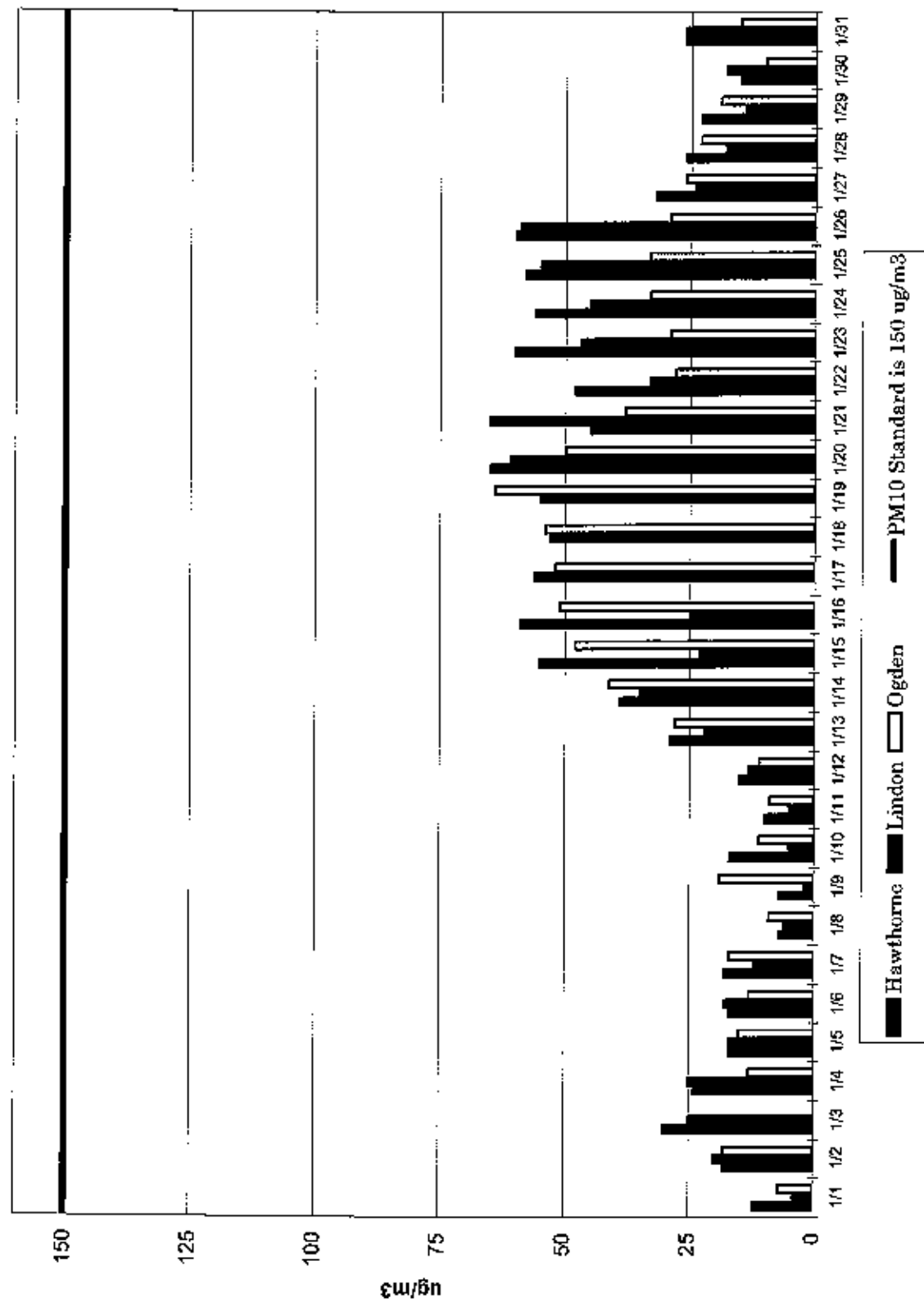
Arith Mean	7.6	14.3	16.3	9.6	12.8	9.3	16.0	10.3	10.4	13.9	14.9	11.2	19.4	12.4	12.7	19.3	7.6	9.5	11.4	17.3	20.3
Max 24-hr Avg	22.7	29.3	39.0	22.9	27.6	25.6	36.7	28.6	19.8	32.2	32.5	24.5	41.9	30.2	28.2	28.6	12.2	22.4	23.5	36.9	36.9
Std Dev	6.0	9.3	10.0	6.4	8.7	6.9	10.1	5.5	4.0	8.0	10.8	7.4	12.8	7.8	6.6	7.8	3.4	5.5	7.5	11.2	14.5
Days of Data	10	10	10	10	10	9	30	30	25	29	5	10	10	10	10	10	8.0	10	5	10	5
Yearly Mean	10.1	13.3	14.0	11.3	10.9	11.6	15.4	17.7	6.4	14.6	13.6	10.6	17.5	11.5	13.7	11.1	7.7	12.6	12.7	13.9	14.7

Highest PM₁₀ Concentration for January-February 2005

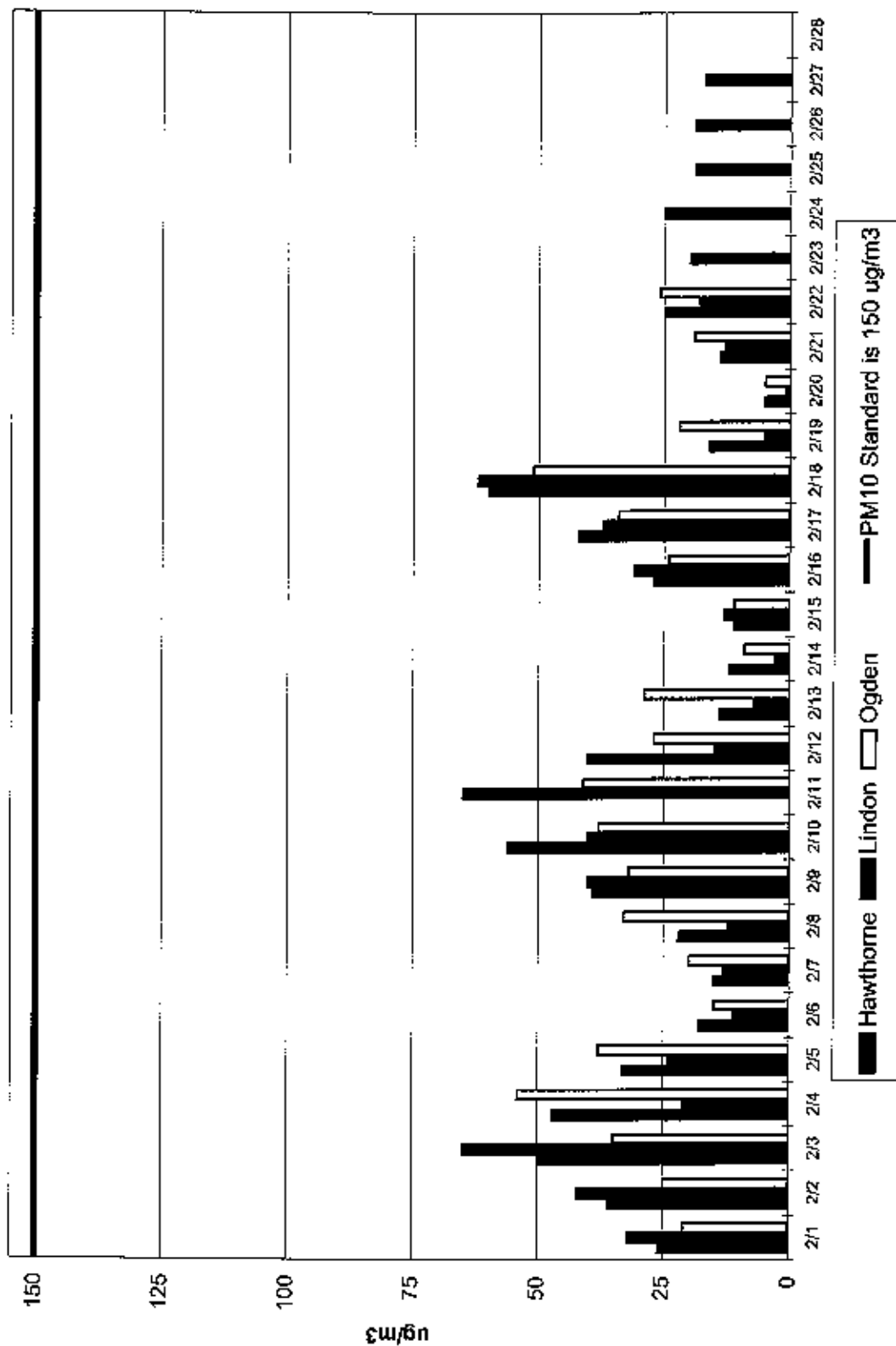
PM₁₀ 24 hour Standard is 150 ug/m³



Daily PM₁₀ Filter at Hawthorne, Lindon, & Ogden January 2005

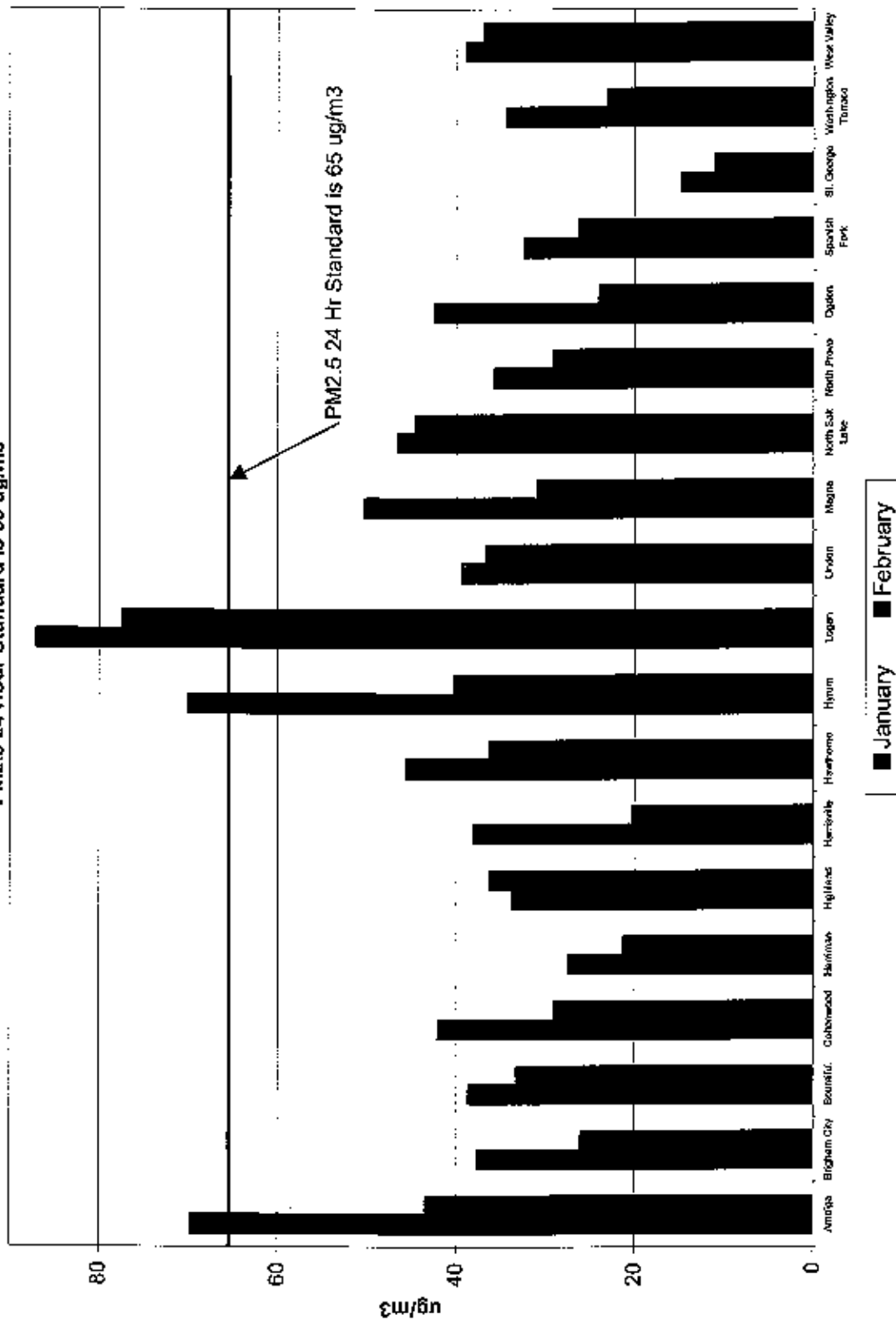


PM₁₀ Filter at Hawthorne, Lindon, & Ogden February 2005



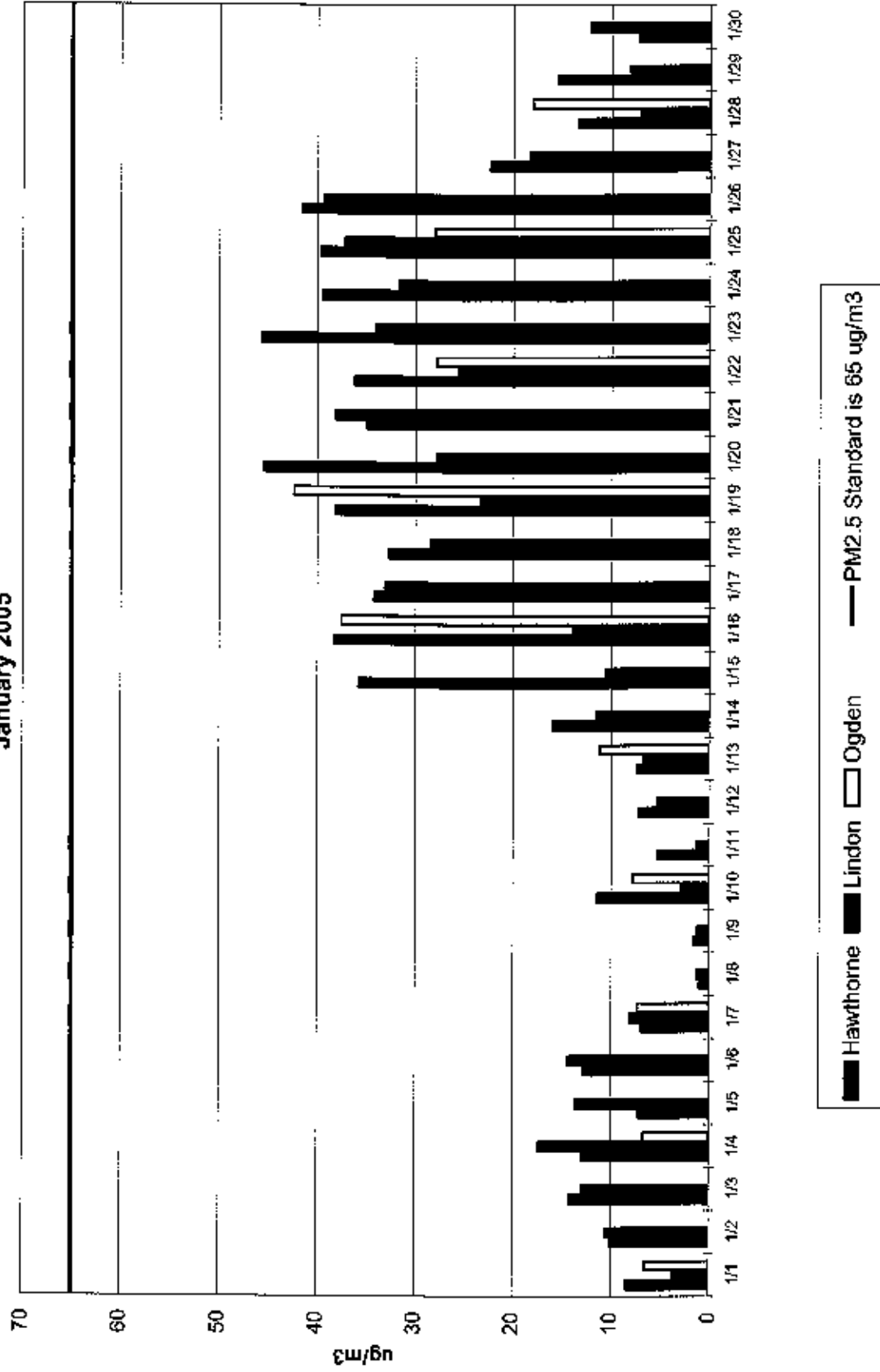
Highest PM2.5 Concentration for January-February 2005

PM2.5 24 Hour Standard is 65 ug/m3



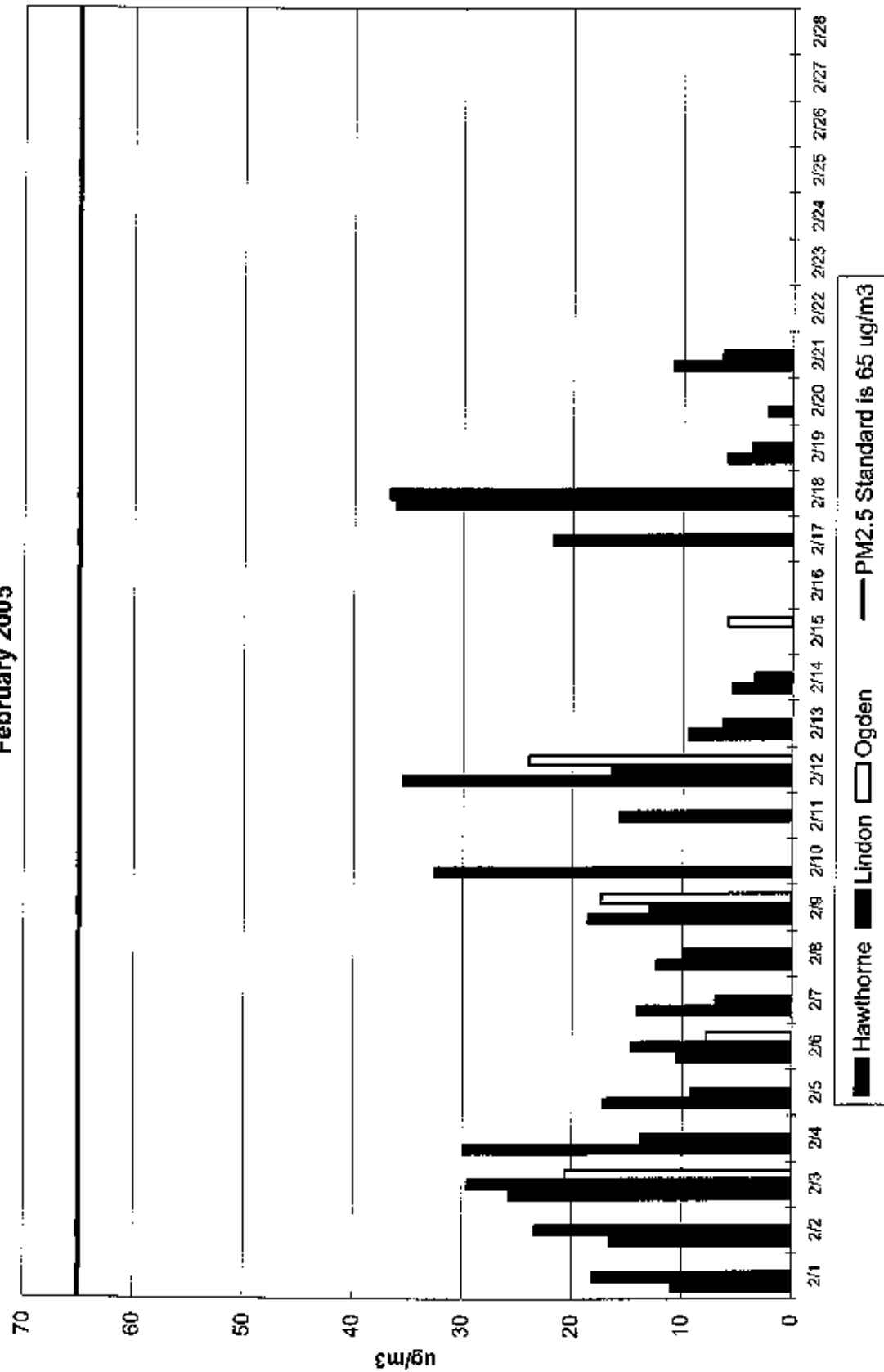
PM_{2.5} Filter at Hawthorne, Lindon, & Ogden

January 2005



PM_{2.5} Filter at Hawthorne, Lindon, & Ogden

February 2005



PM2.5 Detailed Charts

UTAH STATE DIVISION OF AIR QUALITY

PM2.5 Actual Concentration (24-hr average) in Micrograms per Cubic Meter

2005 January

DATE	AG	BR	BV	CA	HE	HG	HV	HW	HY	LA	XA	LN	LX	MG	N2	NP	O2	SF	SW	WT	WX	WW	WV
01/01	4.3	5.2	7.2	5.2	7.4	3.1	5.0	8.4	5.4	7.0	7.3	3.7		2.8	6.7	4.3	5.5	2.3	10.3	6.0		5.0	14.3
01/02								10.1		13.4	13.3	10.6											
01/03								14.2		20.0	25.3	13.0											
01/04	13.6		12.5	17.2	12.3	12.2	3.9	12.9	19.0	9.9	10.0	12.4	17.5	15.7	20.1	15.3	6.7	17.4	8.7	7.1	7.3	15.2	
01/05								7.2		9.6	10.0	13.6											
01/06								12.8		9.5	9.5	14.4			11.6								
01/07	9.0	4.5	7.4	6.9	3.3	5.4	9.1	6.9	3.7	6.8	7.0	8.1		2.4	9.4	8.5	7.3	3.8	3.3	4.3		5.7	7.0
01/08								1.0		1.2	1.2	1.3			3.0								
01/09								1.6		8.0		1.2			4.6								
01/10	7.5	3.8	3.7	9.5	5.0	1.7	6.1	11.5	3.7	8.5		2.9	2.9	4.5	11.4	5.0	7.0	3.0	0.9	7.0	7.1	7.2	
01/11								5.2		6.7		1.3			13.9								
01/12								7.2		8.0		5.3			8.0								
01/13	10.1	4.4	6.2	10.1	3.0	2.2	6.6	7.3	3.5	16.5		6.7		3.2	5.6	6.2	11.1	5.5	10.1			7.8	
01/14								16.0		34.0		11.5			22.5								
01/15								35.8		49.9		10.6			40.2								
01/16	69.7	34.1		35.9	19.0	11.7	36.3	30.3	20.0	72.9		11.9	14.4	36.7	22.2	23.7	37.5		2.0	31.2	31.3	17.8	
01/17								34.2		87.0		33.1			37.4								
01/18								32.7		73.9		20.4			37.4								
01/19	46.2	37.6	21.5	37.2	19.7	17.1	30.0	30.1	37.4	51.2		23.3		50.3	46.5	19.9	42.4	21.2	14.0	34.3			
01/20								45.4		42.2		27.9			43.3								
01/21								34.9		29.9		33.2			29.0								
01/22	21.4	21.3	22.6	37.6	15.9	23.9	23.5	36.7	23.1	24.3		25.7	25.0	22.0	92.9		27.8	24.3	1.7	23.8	24.6	27.7	20.5
01/23								45.6		51.2		54.1			42.2	30.5							
01/24								39.5		50.7		51.7			36.0								
01/25	31.1	20.5	21.3	42.0	27.4	33.7	29.3	39.7		35.5		37.2		24.5	39.7	15.7	29.0	32.4	9.7	26.9		38.9	
01/26								41.6		29.5		39.3			12.3								
01/27								23.9		48.6	50.3	43.3			29.5								
01/28	8.4	12.2	15.5	11.9	7.2	6.7	13.5	13.4	19.4	35.3	54.8	7.1	6.8	13.3	17.4	5.3	18.1		5.3	16.1	16.0		
01/29								15.5			47.5	9.1			15.1								
01/30								7.3			12.1	12.2			7.5								
01/31	13.2	6.2	6.0	11.1	5.4	10.3	7.7	11.9			14.5	12.1		5.3	12.7	10.8	9.3	9.4	6.3	7.4		9.5	

AG	24.9	15.0	15.0	20.4	11.3	16.7	14.4	21.1	22.0	30.2	20.3	14.5	13.5	16.5	23.2	15.1	19.4	11.2	6.2	16.5	14.5	17.2	18.5
BR	22.7	27.6	24.6	42.0	27.4	33.2	34.0	45.8	70.0	87.0	55.0	39.5	25.9	59.3	46.5	19.7	42.4	32.4	14.9	34.3	31.3	38.9	23.5
BV	21.3	12.8	15.5	14.5	3.5	9.9	12.8	14.3	24.3	23.6	15.5	12.0	9.1	15.7	14.1	11.0	15.3	10.9	5.3	11.5	10.6	13.9	10.9
CA	11	10	10	11	11	11	11	31	9	20	13	31	5	11	43	11	17	9	11.0	10	5	4	3
HE	23.2	3.2	11.2	12.1	5.6	8.5	9.4	12.0	17.6	11.0	6.3	10.4	9.4	9.4	15.8	9.4	11.1	7.8	7.7	9.4	10.1	11.7	10.8

UTAH STATE DIVISION OF AIR QUALITY

PM2.5 Actual Concentration (24-hr average) in Micrograms per Cubic Meter

2005 February

Date	AG	BR	BV	OW	HE	HG	HV	HW	HY	L4	X4	LN	LX	MG	N2	NP	O2	SF	SN	WT	WX	WV	W
02/01								10.9			22.6	13.1			11.0								
02/02								16.5		25.9	25.9	23.4			10.5								
02/03	33.2	21.2	23.5	29.0	21.3	29.6	20.2	25.7	30.9	40.9	40.7	29.5	30.3	18.1		29.1	20.5	26.2	11.0	23.1	17.4	24.3	24.6
02/04								29.9			40.4	13.7			40.8								
02/05								17.2			7.4	9.2											
02/06	25.2	6.7	10.1	11.9	20.1	12.8	7.1	10.5	11.9		17.5	14.6		6.0		13.8	7.9	12.6	9.5	6.6		10.2	
02/07								14.1			26.1	7.0											
02/08								12.3			24.3	9.9											
02/09	40.8	11.9	14.2	2.9	12.5	9.7	19.5	18.6	10.9		32.4	12.9	12.6	14.1	5.4	11.6	17.4	9.0		14.7	15.2	21.2	21.5
02/10								32.5			40.9				17.5								
02/11											49.7	15.8			44.5								
02/12	43.4	21.0	23.6		16.7	9.2	19.5	35.5	40.2		40.4	16.5		26.4	29.0	16.1	24.0	12.2		19.9		29.4	
02/13								9.5		25.6	24.5	6.3			13.9								
02/14								5.5			6.2	3.5			7.0								
02/15		1.1	-1		5.6	4.6	4.1		5.2		9.2		7.6	4.9	5.3	7.8	5.9			5.1	5.2	5.7	5.9
02/16										25.8	25.8				13.8								
02/17										44.2	43.1	21.8			27.1								
02/18		36.0	33.2			36.2		34.2	39.4	57.0	59.7	34.7		30.9	37.2							36.8	
02/19								6.0		39.2	36.7	3.7			9.7								
02/20								2.3		11.3	11.0				4.7								
02/21	13.0		6.5			2.9		10.9		22.9	22.9	6.4	6.1		8.7							5.6	5.9
02/22										28.6	28.5				18.3								
02/23										35.2	35.5												
02/24																							
02/25																							
02/26																							
02/27																							
02/28																							

Mean 2005	32.5	15.9	15.5	14.6	13.2	15.0	13.9	16.9	24.4	32.4	31.4	14.6	14.1	16.7	19.5	15.7	15.1	15.9	19.0	13.9	12.6	19.0	14.4
Max 24- hr Avg	43.4	26.0	23.6	29.0	21.3	36.2	20.2	36.2	40.2	57.0	59.7	36.7	30.3	30.9	44.5	29.1	24.0	26.2	11.0	23.1	17.4	36.8	44.6
Std Dev	16.2	9.1	10.6	13.7	6.1	12.8	7.7	10.8	14.7	12.5	17.2	9.2	11.1	10.6	12.7	8.1	7.9	7.6	1.4	7.9	6.2	12.2	10.0
Days Exceed	5	3	7	3	5	7	5	18	6	11	23	17	4	5	17	5	5	4	20	5	3	7	4
Severe Days	2	0	1	1	0	0	0	1	0	1	1	0	0	0	1	0	0	0	1	0	0	1	0

PM10 Detailed Charts

UTAH STATE DIVISION OF AIR QUALITY

47mm Particulate PM10 Concentration Adjusted to Sea Level (24-hr average) in Micrograms per Cubic Meter

2005 January

Date	Colony Blvd	Highway 12	Highway 12	Highway 12	Highway 12	Highway 12	Highway 12	Highway 12	Highway 12	Highway 12
01/01	7	12	4		6			14		7
01/02		18	20					16		18
01/03		30	25					32		
01/04	24	24	25	9	20		23	26	28	13
01/05		17	17					19		15
01/06		17	18					17		13
01/07	13	18	12	14	16		11	25		17
01/08		7	6					10		9
01/09		7	2					7		19
01/10	10	17	5	9	6		5	18	17	11
01/11		10	5					11		9
01/12		15	13					18		11
01/13	25	29	22	23	15		13	25		28
01/14		39	35					47		41
01/15		55	23					50		48
01/16	50	59	25	88	46		20	49	51	51
01/17			56					54		52
01/18			53					56		54
01/19	57		55	66	46		34	72		64
01/20		65	61					55		50
01/21		45	65					33		38
01/22	46	48	33	24	23		28	39	38	28
01/23		60	47					49		29
01/24		56	45					45		33
01/25	59	58	55	41		46		54		33
01/26		60	59					43		29
01/27		32	24					23		26
01/28	19	26	18	59	16		11	16	29	23
01/29		23	14					19		19
01/30		15	18					13		10
01/31	14	26	26	17	11		20	29		15
Jan 2005 Avg	29	32	29	35	28		26	32	33	27
Max 24-hr Avg	59	65	65	88	46		46	72	51	64
95th Per	20	19	19	27	15		18	17	13	16
90th Per	11	28	31	10	10		3	31	5	30
80th Per										
Yearly Avg	29	26	26	24	22		22	23	40	25

UTAH STATE DIVISION OF AIR QUALITY

47mm Particulate PM10 Concentration Adjusted to Sea Level (24-hr average) in Micrograms per Cubic Meter

2005 February

Date	Carbonville	Henrieville	London	Logan	Monticello	Panguitch	Alton	Alton	Alton	Alton	Alton
02/01		26	32						24		21
02/02		36	42						34		25
02/03	41	50	65	52	32		44	46	49	54	35
02/04		47	21						77		54
02/05		33	24						38		38
02/06	17	18	11	23	9		22		19		15
02/07		15	13						18		20
02/08		22	12						31		33
02/09	35	39	40	46	25		22	21	55	60	32
02/10		56	40						70		38
02/11			65						72		41
02/12	38	40	15	55	29		17		34		27
02/13		14	7								29
02/14		12	3						14		9
02/15	15	11	13	14	12		10	9	16	17	11
02/16		27	31						27		24
02/17		42	37						50		34
02/18	69	60	62	75	43		59		61		51
02/19		16	5						23		22
02/20		5	1						13		5
02/21		14	13	30			9	7	24	28	19
02/22		25	18						47		26
02/23			20								
02/24			25				19				
02/25			19								
02/26			19								
02/27			17		20						
02/28											
Actual Mean	36	29	25	42	24		25	21	38	40	28
Actual Max	69	60	65	75	43		59	46	77	60	54
Std Dev	20	16	18	21	12		17	18	20	20	13
Upper Limit	6	21	27	7	7		8	4	21	4	22
Lower Limit											
Yearly Avg	29	26	26	24	22		22	23	40	46	25

SUMMARY

WOOD BURNING CONTROL PROGRAM

	WINTER	SALT LAKE/DAVIS		UTAH COUNTY		WEBER COUNTY		CACHE COUNTY	
		Yellow	Red	Yellow	Red	Yellow	Red	Yellow	Red
PM2.5	2004-2005	21	2	0	0	0	0	14	12
	2003-2004	4	23	1	15	12	9	4	25
	2002-2003	4	2	0	0	0	0	1	1
	2001-2002	11	8	7	3	9	5	22	5
	2000-2001	15	10	2	4	5	0		
PM10	1999-2000	1	0	0	0	0	0		
	1998-1999	0	0	0	0	0	0		
	1997-1998	8	3	0	0	0	0		
	1996-1997	4	0	3	0	0	0		
	1995-1996	7	7	6	5	4	0		
	1994-1995	12	7	5	5	0	0		
	1993-1994	9	0	15	2	2	0		
	1992-1993	17	17	11	23	0	0		